

A.  
M E D I C I N A L  
D I C T I O N A R Y:

INCLUDING

PHYSIC,

SURGERY,

ANATOMY,

CHYMISTRY,

AND

BOTANY,

In all their BRANCHES relative to MEDICINE.

TOGETHER WITH A

HISTORY *of* DRUGS;

An ACCOUNT of their Various

PREPARATIONS, COMBINATIONS, and USES;

AND AN

INTRODUCTORY PREFACE,

Tracing the PROGRESS of PHYSIC, and explaining the THEORIES which  
have principally prevail'd in all Ages of the World.

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With COPPER PLATES.

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By R. JAMES, M. D.

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V O L. III.

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*The LORD hath created Medicines out of the Earth, and he that is wise will not  
abhor them, Ecclesiasticus, Chap. xxxviii. Verse 4.*

*Ἱητρικὴ, τεχνῶν μὲν πασέων ἐστὶν ἐπιφανέστατη.*

HIPPOCRATES.

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M.DCC.XLV.



## N.

**N.** FOR the Signification of this Letter in the chymical Alphabet, see ALPHABETUM CHYMICUM.

N, in Prescription, imports, Number.

**NABIT.** Powder'd Sugar-candy, esteemed a good Remedy for the Eyes. *Castellus* from *Matthæus de Gradibus*.

**NACTA.** An Apostemation of the Breasts, particularly those of Women. *Rulandus*.

**NADUCEM.** An uterine Mole. *Castellus* from *Avicenna*.

**NÆVUS.** A Mole on the Skin, Wen, or Mother's Mark.

All preternatural Tumors upon the Skin, in the Form of a Wart or Tubercle, are termed Excrescencies; by the *Greeks*, *Aerothymia*; and, when they are born with a Person, *Nævi Materni*, or Marks from the Mother. A large Tumor depending from the Skin is denominated a *Sarcoma*. These appear in every Part of the Body; as the Head, Face, Eye-brows, Neck, Breast, Abdomen, Anus, Arms, and Legs: But the worst, in the Opinion of *Celsus*, are those which arise on the Private Parts. The Size and Figure of them are surprisngly various; and, according to the Remarks and Delineations of several Authors, some are of an enormous Bulk. In Colour, some resemble the Skin, others are black or red; in Shape, they represent Strawberries, Mulberries, Grapes, Figs, Pears, Mice, and various other Figures.

They are to be removed almost in the same Manner as Warts, by Ligature, the Knife, potential or actual Cauterics, as their Size, Situation, Figure, and other Circumstances, with the Habit and Inclination of the Patient, shall require. But if they have a very large Root, as those Warts have, which the *Greeks* call *Myrmecia*, or are near any of the larger Veins or Arteries, or firmly united to any Bones, or have a Tendency to a Cancer, the Surgeon should remove them with great Circumspection; or when the Danger is imminent, leave them untouched, that the Patient may not be exposed to worse Symptoms, or the Hazard of Life. When these Tumors are large, or seated near the larger Veins or Arteries, the Operator should be furnished with Styptics, Bandages, and sometimes actual Cauterics, to stop the Hæmorrhage, especially if they are taken away by Abcession. *Heister. Chirurg.*

**NAFDA**, and **NASDA**, seem to be Corruptions of **NAPHTHA**.

**NAGAM.** H. M. The Name of a filiquiferous Tree, which grows plentifully in many of the *East Indian* Islands. The Juice of the Leaves, mixed with the Oil of the *Indian* Nut, dispels periodical Inflations of the Belly, used by way of Ointment.

**NAGEMLUS.** The Name of a Fish mentioned by *Aldrovandus*.

**NAKIR.** A violent Flatulence, which passes from one Limb to another, attended with Pain. *Blancard* from *Schenkius*.

**NAJUGN.** The Name of a bacciferous Shrub, which grows in *Malabar*, and flowers twice a Year. The Root, taken by way of Decoction, eases Pains of the Stomach, the Colic, and Gripes of the Intestines. A Decoction of the Wood allays Thirst; the Leaves, bruised and torrefied, remove Vertiges, and Weakness of the Head, if apply'd thereto; and a Vapour of the Decoction of the same eases Pains of the Gout; the expressed Juice of the young Leaves, drank, helps Digestion. *Raii Hist. Plant.*

**NANA**, or **NANAS.** The same as **ANANAS**.

**NANDI-ERVATAM.** The Name of a small Shrub, which grows in the *East-Indies*; the Whole of which is lactescent. The Juice expressed from it, mix'd with Oil, eases Pains of the Eyes, if the Head is anointed therewith. The Root masticated, and held in the Mouth, eases the Tooth-ach; and the same, boiled in Oil, makes a good Ointment for all Indispositions of the Head, especially Pain; bruised, and taken in Water, it kills Worms; bruised with the Juice of Lemon, and put into the Eyes, it removes Films. *Raii Hist. Plant.*

**NAPECA.** A Species of Jujube. See **OENOLIA**.

**NAPELLUS.** See **ACONITUM**.

**NAPHA.** Orange-flower Water.

**NAPHTHA.** Offic. Charlt. Foss. 13. Worm. 30. *Aldrov.* Mus. Metall. 388. *Naphtha alba & nigra.* *Kemph. Amon.* 274. *Pharmacum Medecæ quibusdam.*

It is of the Colour of the *Babylonian* Bitumen, of a liquid Consistence, very subject to take Fire, sometimes white, sometimes black; it is seldom or never to be met with in our Shops;

and therefore *Petroleum* commonly supplies its Place. It is a Liquor of an oily Substance, like rectify'd Spirit, very thin, pellucid, very penetrating, and subject to kindle into a Flame: It agrees in Virtues with *Bitumen*. There are some, who, as *Agricola* assures us, are persuaded, that the *Camphora* of the Antients was prepared of *Naphtha* by Sublimation; others there are, who will have it, that *Naphtha* and *Petroleum* are one and the same Substance; but since we are not as yet certain what *Naphtha* is, we shall not venture to determine in the Case. As for *Naphtha*, tho' it has many, and those very considerable, Virtues in Medicine, which *Dioscorides* insists upon at large, yet, at present, we are told by *Kempfer*, that he never knew the *Persians* apply it to any other Use, than to temper their Vernish. *Dale.*

**PETROLEUM.** Offic. Worm. Mus. 30. Charlt. Foss. 14. *Petroleum Oleum Petreæ.* Schrod. 3. 514. *Petroleum Oleum de Saxo, Naphtha, Oleum Petreæ.* Mont. Exot. 12. *Petroleum sive Oleum Terræ.* Ind. Med. 91. *Bitumen liquidum, Oleo simile, quod innatat lacubus.* Kentm. 20. *Naphtha sive Petroleum.* Geof. Lact. Ed. Angl. 133. *Oleum Petreæ vulgè.* OIL OF PETER, or ROCK-OIL.

It is a fat liquid Substance, of a black Colour, and a strong Smell. There are two Kinds of it; one native, which flows out of Rocks and Stones; and the other artificial, which is distilled from Charcoal and Fossils. Of the native, they reckon at *Paris* two Sorts:

1. *Petroleum rubrum sive Galianum.* Ind. Med. 90. *An Petroleum rufum Schröderi?*

2. *Petroleum flavum seu Italicum.* Ind. Med. ibid.

The *Bitumen*, or *Petroleum Galianum*, is esteemed an Antihysteric; and, also, good for the Tooth-ach: It heats and dries, consists of fine Parts, is a Digestive and Resolvent, and beneficial to the nervous System. *Schröder.* *Petroleum* is of different Colours, but the white is the best. *Dale.*

The *Naphtha* of *Dioscorides*, or *Petroleum* of the Shops, is a subtile, inflammable, mineral Oil, with a fragrant bituminous Smell, of different Colours, either white, yellow, red, or black. Different Names are given it by Authors: The *Babylonians* gave the Name of *Naphtha* to an Oil either black or white, which flowed from some Fountains near *Babylon*. It was likewise called *The Oil of Medea*, because she is said to have burnt *Creon's* Daughter to Death, by anointing her with this Oil. It had the Name of *Petroleum*, because it distils from Rocks. By *Myrepsus* it is termed *Allicola*; by others, *The Oil of St. Barbarus the Abbot*, *The Oil of St. Catharine*, or *The Holy Oil*. The Word *Naphtha* comes from a *Greek* Verb, which signifies, to light, or kindle.

There are few Countries in which this Oil is not to be found. In the Island of *Samos* a Kind of it is gathered, called by the Inhabitants by a Name which signifies *Oleum Terræ*; and it is in great Esteem among the *Indians*. In *Italy*, near *Modena*, the Oil is gathered from Springs and Wells; and, indeed, this whole Duchy abounds with it, especially a Place called *Frumetto*. The Inhabitants dig Wells to the Depth of thirty or forty Feet, till the oily Spring is found; and there it is always mixed with the Water. The Wells dug at the Foot of the Hill furnish a large Quantity of very red Oil; those near the Top, a white Oil, but in smaller Quantities. There is another Rock in the same Country near the *Apennine* Hills, where there is a perpetual Spring of Water, on which this Oil swims, of a yellow Colour, and in so great Quantities, that twice a Week they gather six Pounds at a time. *Petroleum* is found likewise in *France*; and particularly in *Britany*, near *Beriers*, a red Oil, mixed with Water, flows from the Crannies of some Rocks, which is collected with great Care, being no way inferior to the rest in Virtue. There is another such Fountain near *Clermont*, in *Auvergne*.

*Petroleum* easily takes Fire; and it is the Custom in many Places, to burn it in Lamps, instead of common Oil. It is plentifully stored with fine volatile Parts, which easily evaporate, and are so greedy of Fire, that if a lighted Torch, or any other flaming Body, be held in the Wells or Fountains of *Petroleum*, the exhaling Effluvia very often take Fire. It is difficultly mixed with Spirit of Wine. By Distillation, it yields an oily Liquor, something more pellucid than before; but it loses a great deal of its native Smell, and gives a more languid and fuliginous Flame. A small Quantity of a yellowish Magma remains at the Bottom of the Alembic; therefore it is evident, that *Petroleum* is not meliorated by Distillation. The best *Petroleum* is reckoned that which is fresh-gathered, of a subtile, bituminous



luminous Smell, white, and pellucid; next to that is the yellow; then the red; but the black is accounted the most impure of all.

*Dioscorides* commends it in Suffusions, and Dimness of the Eyes. The *Petroleum* of *Britany* is given, a few Drops at a time, with great Success, in what is called a Suffocation of the Uterus, and to kill Worms in Children. It is proper in a Suppression of the Menses, taken in the Quantity of twenty-five Drops, or the Region of the Pubes being anointed with it. In a Palsy, accompanied with cold Pains in the nervous Parts, the Part affected is anointed with it. *C. Lusitanus* commends the Use of it in stopping the Progress of a Scirrhus, made up in the following Liniment:

Take Oil of Myrtle, and of Nutmegs, each half an Ounce; the Fat of any Beast of Burden, two Ounces; *Petroleum*, three Ounces: Mix them together.

**NAPO-BRASSICA.** A Name for the *Brassica*, *Radice Napiformi*.

**NAPTA.** The same as **NAPHTHA**. It is, also, a Name for a Sort of Tumor, otherwise called **NATA**, or **NATTA**.

**NAPUS.** See **BUNIAS**.

**NAPY.** Mustard.

**NAR.** Fire. *Rulandus*.

**NARCAPHTHON**, or **NASCAPHTHON**, *νάρκαπθον*, or *νάρκαπθον*. An aromatic Bark. See **CASCARILLA**.

**NARCE**, *νάρκη*. A Torpor, Stupor, or Dulness of Sensation; or a Dulness, or Hebetation, of the Senses. It, also, imports a Stupefaction of the Senses by Medicines, in order to render a Person less sensible of Pain.

**NARCISSO-COLCHICUM.** A Name for a Species of *Lilio-narcissus*, remarkable for nothing but the Beauty of its Flower; called by *Boerhaave*, *Lilio-narcissus*, *luteus*, *autumnalis*, *minor*.

**NARCISSO-LEUCOIUM.**

The Characters are;

The Flower is, for the most part, composed of six Leaves, in form of a Lily, which are sometimes equal, and sometimes unequal and pendulous: The Empalement becomes a roundish Fruit, which is divided into three Cells, and full of roundish Seeds: To which may be added, It hath a bulbous Root.

*Boerhaave* mentions six Species of this Plant, none of which have any particular Medicinal Virtues ascribed to them at present, that I know of.

**NARCISSUS.**

The Characters are;

The Flower is naked and narrow, and tubulous in its lower Part, but hexapetaloidal above, and expanded into the Form of a Star; in its Centre it bears a floral Crown, shaped like a Bell, or a Tube, and is furnished with six Stamina; it grows either on the uppermost Part of the Ovary, which is divided into three Parts, and contained within the Crown in those which bear a Tube instead of a Crown; or else it grows on the highest Part of a long Tube, in those which have a Bell instead of a Crown. The End of the Pedicle bears an Ovary, which, in those that bear one Flower on one Stalk, is covered with one long Tube, resembling a membranaceous vaginal Calyx; but in those which produce several Flowers, in manner of an Umbella, this Vagina covers the lowest Parts of the Pedicles, leaving the Ovaries naked. The Ovary passes into a triangular oblong Fruit, containing roundish Seeds.

Botanic Authors mention a great many Species of *Narcissus*, which are only remarkable for the Beauty of their Flower; *Boerhaave* mentions forty-seven.

The officinal *Narcissus* is thus distinguished;

**NARCISSUS.** Offic. *Narcissus medio-luteus*. Ger. 110. Emac. 124. *Narcissus medio-luteus vulgaris*. Park. Parad. 74. Raii Hist. 2. 1135. Synop. 3. 371. *Narcissus pallidus circulo luteo*. C. B. P. 51. Tourn. Inst. 154. *Narcissus medio-luteus cum aliquot floribus*. J. B. 2. 604. **COMMON PALE DAFFODIL**, or **PRIMROSE PEERLESS**.

It grows on Banks, and in Meadows, and flowers in April. The Root, which is the Part used in Medicine, being taken either in Meat or Drink, is an Emetic. It is of Service in Amblyosions, conglutinates the divided Nerves, is effectual in Luxations of the Malleoli, and inveterate Pains of the Joints; removes cutaneous Blemishes in the Face, and the Vitiligo; cleanses foul Ulcers, breaks Abscesses, and draws out Splinters from the Body. Dale from *Dioscorides*.

**NARCOSIS.** A Stupefaction, from *νάρκη*, Torpor, Stupor, or Numbness.

**NARCOTICA**, *νάρκη* (απόμακτα), from *νάρκη*, to affect with a Stupor, or Torpor, Narcotics, are soporiferous Medicines, which induce a Stupefaction.

*Soporifics*, in Greek, are called *ὑπνωτικά*, *Hypnotics*, *δυσδυνα*, *Anodynes*; if they be of a potent Nature, they take the Name of *Narcotics*, or *Stupefactives*; and are such Kinds of Remedies, as by their subtle, noxious, and deleterious Exhalations,

diminish, or quite destroy, the Sense and Motion of the solid Parts. Among *Soporifics*, the most eminent are those which are usually prepared for medicinal Uses, of the whole Poppy, especially *Opium*, which by the Antients was called *Lacryma Papaveris*, (the Tear of the Poppy) and *Meconium*, which is the Extract of the Poppy, made by Boiling. In the Class of Stupefactives, which are of a violent Nature, are all such Remedies as are prepared of the *Mandragoras*, *Hyoscyamus*, *Stramonium*, and *Datura*. Stupefactives and *Soporifics* are, not without good Reason, reckoned amongst Poisons, since they exert their noxious Influence in a short Space of Time, when taken in a small Quantity; and a Quantity a little larger than ordinary proves mortal. Besides, their principal Operation is on the most noble Parts of the Body, which are the Origins of Sense and Motion; and, moreover, they act by means of an Element quite opposite to Nature, a noisome sulphureous Vapour, by which they diminish to a considerable Degree, or quite destroy, the Sense and Motion of the motive Fibres.

The Operation of stupefactive Poisons is different from that of Caustics: These latter, with their highly acrimonious and penetrating Salts, excite preternatural and violent Motions; the other, by their sulphureous Vapour, retard or stop those Motions and Sensations, which principally belong to the nervous Membranes; and by that means render the Circulation of the Blood more languid, and the Excretions, slower and more imperfect.

The Life of the human Body, and the Integrity of its Functions, consists in the due Tone of the Solids, and the free and equable Motion of the Fluids: The first depends on their moderate and equable Systole and Diastole, or their Contraction and Dilatation; the other in a proper Temperament, Quantity, and Ventilation of the Blood. Whatever, therefore, in a speedy and effectual Manner destroys that due Tone of the Solids, and disturbs the equable Motion of the Fluids, is naturally qualify'd to subvert all the Functions of the animated Body; and, if it works such an Effect in a violent Manner, it may be justly called Poison. And when *Soporifics* and *Narcotics*, in too great a measure, diminish the Motions, and injure the Tone, of the solid Parts, or render the Circulation of the Blood more languid and imperfect, they are highly destructive to Nature.

We are assured by undoubted Experience, that the Effects of Opiates and Narcotics, especially when taken in an immoderate Quantity, are a weak, low, and small Pulse, a Strangeness and Difficulty of Breathing, a soporous Indisposition, and Heaviness of the Head, a Dulness of the Senses, and oftentimes a Deliriousness, attended with a Diminution of Appetite, Costiveness, a Badness of Digestion, and a remarkable Decay of Strength. All these Symptoms proceed from no other Cause than a too slow Progress, or Stagnation, of the Blood and Fluids; for since the Motion of the Fluids depends only on the Tone, Strength, and systolic and diastolic Motions, of the solid Parts, it plainly appears, that the animal Spirit, that Fluid of the Brain, which directs and regulates the Motion of the Fluids, is primarily and preternaturally affected by these Remedies.

The Elements by which *Narcotics* operate, are of an highly volatile and penetrating Nature, since they so deeply insinuate themselves like a Vapour into the Pores of the Membranes and Nerves, and, by contaminating that most pure and moveable Fluid, deprive, by little and little, the Solids of their Tone and Motion.

That the Elements by which *Narcotics* exert their Force, are extremely volatile and penetrating, may be proved by several Arguments: First, their Virulence is almost intirely destroyed by long and vehement Boiling. Secondly, if they are apply'd in Ointments or Epithems to the Head, or other nervous Parts, as the Soles of the Feet, the Palms of the Hands, or only received by way of Smelling, they induce a Sleepiness. *Dioscorides* affirms *Opium* to be soporiferous by Smell alone. And *Plutarch*, in his *Symposiacs*, relates, that the Vapours proceeding from the Poppy have, for want of due Caution, proved fatal to those who have gather'd the Juice. And, thirdly, it is found by manifold chymical Experiments, that there are no better Correctives of their Virulence than *Acids*, such as Juice of Quinces or Citrons, Wine-vinegar, or Spirit of Vitriol, which have a mighty Influence in fixing the volatile Sulphur; and *Opium* is well known to lose its Virtue by being roasted on an heated Plate. All Narcotics and Hypnotics exhale a strong and malignant kind of Vapour, as we are assured by the Smell, which is a manifest Indication of an ungrateful Sulphur contained in them.

*Narcotics* act on the nervous Membranes of the Stomach and Intestines, principally by means of a vaporous and fetid Sulphur. For, as the Stomach and Intestines first and immediately feel the Force and Efficacy of Remedies, they are so much the more liable to suffer from the Influence of Medicines, which are of a stronger and more penetrating Nature than ordinary. *Opium*, or any other Narcotic, after it is taken, and begins



gins to be dissolved by the internal Heat and Moisture, diffuses its noxious Vapours, which being received into the Pores of the nervous Membranes, the Fluid, on which their Tone and Motion depend, loses its Nature: Hence the Sensation, and, also, the peristaltic Motion, of the Intestines become more languid: For if a strong Smell, as in the Case of Hysterics, received up the Nostrils, such, for Instance, as proceeds from burnt Feathers, or Afa-fœtida, has so sudden an Effect in composing the turbulent and disorderly Motions in the nervous and membranous System; and if, on the contrary, a sweet-smelling Vapour has the Force of immediately disturbing the whole Frame of the Muscles by violent Spasms; why may not the foul, and noisome Exhalations of Narcotics, by contaminating a Fluid of consummate Activity, as well injure, or put a Stop to, its Motion? But those things which act on the Nerves, are most speedy in their Effects, because their Influence is immediately diffused over the whole nervous System. An Opiate, as soon as taken, or before it is out of the Stomach, very soon causes an Inclination to sleep, and Relief from Pain in distant Parts; and Opiates, most of all, exert their Influence on the Nerves, by virtue of which, those racking Pains which are incident to the Intestines, are remitted in a Moment, being succeeded by a Nausea, Loathing of Food, and, if there be sufficient Strength, by Vomiting.

Narcotics have, also, a mighty Influence on the Membranes of the Brain, where, by greatly diminishing the Spring and Systole of the Arteries, which are furnish'd with very thin Membranes, they cause Stagnation of their Blood therein, with Distentions of the Vessels of the Head; by which means they induce a Torpor, Drowsiness, Deliriousness, with frightful and troublesome Dreams.

There is nothing in the Nature of Things, that will render a wide and intelligent Person a Fool, and stupid, so soon as a Narcotic. That the Datura has such an Effect, is well known; and that the Solanum Furiosum, and its Berries, will suddenly render a Man of sound Sense a Maniac, is confirmed by many Observations in *Matthioli, Comment. in Dioscorid. Wierus de Præstigio, Mercurialis de Venenis, and Lobelius in Adversariis Stirpium*. To these we may add the following Observation of our own: A certain Person labouring under an Hæmoptoe, having, thro' want of Care, taken too large a Dose of a Medicine containing a good Quantity of the Seeds of Henbane, was deprived of all Sense and Memory, and continued waking for some Days. And something like this happened from Pills of Houndstongue, given in too large a Dose to repress Vomiting. Even an external Application of Henbane may procure Madness, as *Platerus* assures us, on the Testimony of *Rondeletius*; and the pernicious Effects of these Kinds of Remedies were not unknown to the Antients. Hence *Cælius Aurelianus, Lib. 1. Cap. 4.* says, "They soon become delirious, who take the Papaver, Mandragoras, or Hyoscyamus, inwardly; but their Pulse at such times is very slow." And *Helmont, Lib. 1. de Lithiasi*, says very justly of Opium, "That they are guilty of a very great Error, who endeavour to cure a Mania with Opiates, since every Opiate is mad in itself;" and, in another Place, "Narcotics will hardly procure Sleep to mad Persons, tho' given in a quadruple Dose, but will increase the Madness." To this Purpose, also, is *Obs. 78. Dec. 11. M. N. C.* of a Person labouring under a Dysentery, who was made delirious with a Clyster of a Pint of a Decoction of Hyoscyamus, and continued in that State for six Weeks.

Narcotics, or stupefactive Remedies, were always very much suspected, by the wisest Physicians among the Antients, in the Cure of Diseases, on account of their deleterious Quality. For a Proof hereof, we shall give a few Testimonies selected from innumerable others. *Galen* was always very fearful of exhibiting Opium; and, *Lib. 3. de Medicam. Compos. Cap. 10.* he says, that "Living Bodies suffer something like Mortification, from the Use of every Remedy composed of Opium, Hyoscyamus, and Mandragoras." The next I shall quote, is *Celsus*, who, *Lib. 3. Cap. 18.* pronounces, that, "If Sleep must be procured by Medicines, Moderation is necessary in exhibiting them, lest we should never be able to rouse the Person from the Sleep into which we have cast him." And, *Lib. 5. Cap. 25.* he says, "To use Anodynes, without urgent Necessity, is a wrong Step; for they are a violent kind of Medicines, and hurtful to the Stomach." But the Effects are worse, which *Scribonius Largus, Compos. 106. Cap. 48.* enumerates: "Opium, says he, taken, induces Heaviness of the Head, Refrigeration and Lividness of the Limbs, and cold Sweats, besides a Difficulty of Respiration, Stupidity, and Loss of Reason." *Trallian, Lib. 3. Cap. 5.* writes, that a certain Person, by the sole Use of Opium, had lost his Voice and Senses in such a manner, that he could never afterwards be recovered. Nor must we omit *Aetius*, who very well describes the pernicious Effects of Opiates in the following Manner: "Opiates, says he, never cure the Diseases themselves on which

"the Pains attend; but, by inducing a Stupor and Dulness of Sensation on the Parts, procure a kind of Rest to the Pains." And, in another Place, to the same Purpose, he says, that "They cause indeed an immediate Cessation of the Pain, but preserve the Cause thereof inwardly, and, in a little time afterwards, induce Faintings and Death, or long and incurable Disorders." And, to speak the Truth, so sudden and pernicious have been the Effects which Physicians of all Ages have recorded from the Use of Narcotics, that they are by no means to pass unregarded, but to be esteemed as an Evidence of some very active and latent Principle, which has Power to hurt; for which Reason Physicians ought to be the more careful and circumspect in the Use of these Kinds of Remedies.

Tho' much Mischief and Danger may be the natural Effects of Narcotics, so that they may be esteem'd not far remov'd from the Nature of Poisons, Physicians, however, both antient and modern, have at all times experienced great Benefit from hypnotic Anodynes, especially in violent Pains and Fluxes; for what greater Benefit can we receive, than to be delivered from intolerable Pains? Besides, such is the Nature of Pain, that, if it be of any long Continuance, it either weakens the Powers of the Mind and Body to such a Degree, as to render a Disease, otherwise favourable, eventually mortal, or else brings Death of itself. Whoever therefore shall be so happy as to know how to remove those Pains, and avert so great Dangers, most certainly confers an extraordinary Benefit, and administers I had almost said divine Consolation to the miserable Patient. And, therefore, if you consult the most antient Compositions, of which *Scribonius Largus* has principally made his Collection, or *Celsus*, you will find many Prescriptions against Pains and Fluxes, of which Opium is commonly the Basis. For an Example, we may take that celebrated Antidote of *Cassius*, described by *Scrib. Largus, No. 120.* mentioned, also, by *Celsus, Lib. 6. Cap. 14.*; the Theriaca Andromachi, Mithridate, Aurea Alexandrina, [see its Composition under the Article ALEXANDRI ANTIDOTUS AUREA] the Reques Nicolai, the Triphera magna Nicolai, and Philonium, with an infinite Number of modern Preparations, enough to fill a Volume with their bare Titles, are but Corrections of Opium, and Compositions which have for their Basis Opium, celebrated by some as an universal Remedy; and some endeavour to extract a Panacea from it. It were indeed heartily to be wish'd, that some eminent Physicians had not been so profuse in their Encomiums on this Remedy, since none has been so freely, and with Impunity, abused, to the Destruction of Mankind, especially in our Times; on which Subject, *Stablius, de Imposturis Opii*, deserves to be consulted. I cannot avoid taking the Opportunity here to remark, that there is a Custom too prevalent in our Times, when we would repress an Hæmorrhage, or alleviate a Pain, of exhibiting Pills of Houndstongue, which, having a Mixture of Opium, and Seed of Henbane, and often leaving behind them an extraordinary Stupor of the Head, ought to be used with the greatest Caution; and never, but when milder Remedies will not answer the Intention; nor then, if the Body be very weak.

In Disorders of the Stomach and Intestines, all things which induce a Stupor, are very cautiously, or never at all, to be exhibited, because no Kind of Medicines is so pernicious and injurious to the Tone and Motion of the nervous Parts.

To preserve Health, and prevent Diseases, nothing is so effectual, as to maintain the Tone, Strength, and Motion, of what they call the *Primæ Viæ*, or first Passages, because that most salutary Excretion which is performed by Stool, and discharges the Sordes, which are the Recrements remaining after Digestion, or are collected from all Parts of the Body, depends chiefly thereon. Where this Evacuation is suppressed, or else performed after a slow and remiss Manner, a Deluge of vicious Humours is soon collected, and becomes the Cause, as well as Fomenter, of Diseases. Now there is nothing which so effectually diminishes the peristaltic Motion of the Intestines, and suppresses intestinal Excretion, as Sedatives and Anodynes, the Truth of which is attested by Experience: For as all Remedies, so especially those which are of a drastic Quality, exert their Efficacy first and principally upon the Stomach and Intestines.

It is very dangerous to administer Opiates and Anodynes, where the Stomach and Intestines are inclining to an Inflammation and Sphacelus, or where an extraordinary Impurity of the Humours disposes them to a Corruption.

That a firm Rest and Stagnation of the Blood in the Vessels, which are productive of an Inflammation, will end in a sphacelous Putrefaction, unless seasonably discussed, is not to be questioned. Whenever, therefore, these Parts, I mean the Stomach and Intestines, labour under violent Pains or Spasms, and the Body is infirm or impure, an Inflammation is justly to be apprehended. 'Tis, therefore, the Business of every prudent Physician, in a Dysentery, an Iliac Passion, a spasmodic Colic,

and



and a violent Cardialgia, diligently to consider, not only the Strength of the Patient, but, also, the various Stages of the Distemper, and the Disposition of the Humours, before he exhibits Medicines of a sedative Quality; otherwise, instead of affording seasonable Relief, he procures the Death of the Patient. Thus, some of the best practical Authors inform us, that mortal Symptoms have forthwith been produced by Opiates taken internally, or injected by way of Clyster. Instances of this Kind occur in *Thomnerus*, in *Observat. Lib. 3. Cap. 5.* *Waldschmidtus*, in *Dissert. de Noxa Opii*; *Tillingius*, de *Opio*; *Sennertus*, *Lib. 6. Praxeos, P. 3. Cap. 1.* and *Marcellus Donatus*, in *Hist. Med. Mirabil.*

Since Medicines of a sedative and stupefying Quality so effectually destroy and impair the Strength of the Intestines, hence 'tis obvious, that nothing has a more effectual Tendency both to produce and cherish hypochondriac Disorders, than a frequent Use of such Medicines. That the hypochondriac Disorder arises from continual Inflations and Spasms of the Stomach and Intestines, which are of a nervous Nature, and that it is the Effect of a Suppression of the Discharge by Stool, and the large Congestion of peccant Humours arising from that Circumstance, are things so certain, that they cannot be doubted of. Since, therefore, Medicines of this Kind, by producing Costiveness, weaken the Strength and Force of the Intestines, hence nothing can be more prejudicial in this Disorder; and I myself have often observed, that the immoderate Use of Opiates and Astringents in checking Diarrhoeas, Dysenteries, and intermittent Fevers, has produced a violent hypochondriac Disorder, in Women called *Hysterics*, which generally afflicted the Patient during the remaining Part of his Life; and, if a Physician, by the frequent Use of Anodynes, checks the Pain, and other Symptoms, accompanying this Disorder, he by that means alleviates them for a time, but lays a Foundation for their recurring with greater Violence.

Sedative Medicines, especially those of the somniferous and stupefying Kind, are, also, injurious to the Head, and increase the Disorders incident to it; because, by rendering the Motion and Pulsation of the carotid Arteries, which consist of slender Coats, more languid, they occasion a slow Circulation of the Blood through the Head. Hence the Stagnations of Blood there produced generate formidable Disorders. In order to keep the Head free from Diseases, 'tis of the last Importance to preserve the Tone of the Membranes of the Brain, and the due Circulation of the Blood through its Vessels. Now nothing is more injurious to the nervous Coats of the Brain, than all vaporous, fetid, and strong-smelling Substances, since, by their means, their Tone and Strength is diminished, the systolic and elastic Force of the small Arteries impaired, and consequently the Circulation of the Blood through the Head, rendered slower: And this slow Circulation is succeeded by a Secretion of the serous Humour, which lays a Foundation for the most considerable Disorders of the Head, such as a Palsy, an Abolition of Memory, an Aphony, a Difficulty of Hearing, lethargic Disorders, Hemiplegies, and fixed Pains, or, in consequence of the too great Distention of the Vessels of the Brain, by the infarcted Blood, Melancholy, which is frequently accompanied with a palpable Depravation of Fancy, an imaginary Appearance of Spectres, terrible Dreams, and a Madness, which easily degenerates into Fury. These vaporous and stupefying Medicines have an uncommon Tendency, not only to generate, but, also, to support and cherish, these Disorders; and, by the incautious Use of them, I have frequently observed wild Disorders of the Head converted into Misfortunes of a more terrible Kind; an Head-ach, for Instance, transformed into a Lethargy; an Hemiplegia, into Stupidity; a Palsy, into an Apoplexy; a Vertigo, into an Epilepsy; and a Difficulty of Hearing, into a confirmed Deafness.

As Anodynes and Opiates are so unfriendly to the Membranes of the Brain and Intestines by diminishing their Tone and Strength, so Children, and old Persons, ought in a particular manner to abstain from the Use of them; first, because they retard the Discharge by Stool; and, secondly, because they weaken the nervous System and Membranes; two Circumstances highly prejudicial, because the Disorders principally incident to these Ages arise either from Costiveness, or a Weakness of the Brain and Nerves.

'Tis certain from Experience, that, by a liberal Use of Anodynes, Children contract a Dulness of Genius and Memory, which lasts for a considerable Time; for a violent Injury done to the tender Structure of their Brain is not easily repaired. For this Reason, *Stalpart Vander-Wiel*, in *Gent. 1. Obs. 42.* justly orders, "That Women and Nurses, should not, when the Children committed to their Care are first affected with Pain and Uneasiness, forthwith exhibit Anodynes; since, tho' they do not generally, by that means, destroy them, they yet often weaken their Brain and Nerves to such

a Degree, as to induce violent Tremors, Palfies, and Stupidity." Of the same Opinion is *Dr. Willis*, who, in *Pharm. Rat. P. 1.* informs us, that, by Medicines of this Kind, he knew some seized with Slowness of Genius, and Stupidity, and others, with Dotage.

Anodynes and Opiates are highly injurious to Persons naturally weak; to those whose Strength is impaired either by Age or Diseases; to those whose Pulse is languid, whose vital Motions are defective, or whose Fluids have a Tendency to Corruption. It ought to be a constant Rule in Practice, never to exhibit strong Sedatives, where the Strength is small, and the Pulse, which is always lessened by Opiates, already weak. Opiates and Anodynes are scarcely ever useful, when the Viscera are infarcted, and their Tone destroyed, as in chronical Disorders. Nor are such Medicines to be exhibited in Cases where the Blood and Humours are highly impure, as in cacochymic and scorbutic Habits, in which the immoderate Use of Opiates, in order to remove Pains or Spasms, proves mortal, because it quickly induces a Sphacelus. When violent Pain has greatly diminished the Strength, or a profuse Sweat been excited, these Medicines should be sparingly used, lest a Palsy, or some other nervous Disorder, should be induced. For this Reason, 'tis far more expedient to use Opiates and Anodynes in the Beginnings of Diseases, when the Strength is entire, than when it is exhausted by the long-continued Shock of the Disorder.

As the two principal Indications for stopping Pain are its Violence, and the Hardness and Strength of the Pulse, so, when these happen, an Hypnotic may be used, especially when the Pain proceeds from an external Cause, such as Worms, the Stone, the Eruption of a Tooth, the Puncture of a Tendon or Nerve, a Division of the Nails by some sharp Instrument, or the thrusting a Nail deep into the Sole of the Foot; which not only frequently induces a terrible Train of Symptoms, but, also, sometimes proves mortal.

As, in all Cases, mild and safe Remedies are preferable to those of a more dangerous and drastic Nature, so, in mitigating Pain, we are never to have recourse to strong Anodynes, provided those of a mild and gentle Kind prove sufficient: Among these we may justly reckon anodyne Sulphur prepared from Vitriol; Spiritus Nitri Dulcis duly prepared; among vegetable Substances, Saffron, and Nutmeg; of fragrant Substances, Musk and Amber; and, of Shop Preparations, the Oils of Chamomile and Yarrow. To this Class, also, belongs Opium depurated with Rain-water, and corrected by a due Addition of Analeptics, Purgatives, or Alexipharms. *F. Hoffman.*

**NARDINUM Unguentum**, Ointment of Nard, is prepared either with an Addition of the Leaf of the Malabathrum, or without it: Generally, however, it is mixed with *Oleum Balaninum*, or *Omphacinum*, inspissated with an Addition of *Schœnanth*; and, in order to give it a Fragrancy, there are added *Costus*, *Amomum*, *Nard*, *Myrrh*, and *Balsamum*. The best is what is of a thin Substance, without Acrimony, and smelling like dry Nard, or *Amomum*.

It is of an attenuating, acrimonious, and deterfive Quality, and has a Virtue of rarefying the Humours; it is liquid, and falls short of a stigmatitious Consistence, without a Mixture of Rosin. There is a baser Sort of *Nardinum Unguentum*, prepared of *Oleum Omphacinum*, the *Juncus odoratus*, *Calamus*, *Costus*, and *Nard*. *Dioscorides, Lib. 1. Cap. 75.*

**NARDUS.**

**NARDUS CELTICA.** *Offic. J. B. 5. 205. Ger. 919. Emac. 1079. Raii Hist. 1. 391. Nardus Celtica Dioscoridis. C. B. 165. Nardus sive Spica Celtica. Park. 117. CELTIC SPIKENARD.*

This small Plant has a long slender Root, which creeps among the Moss upon the Surface of the Earth, divided into several Branches, full of very small Fibres, of a strong aromatic Smell, when dry; from the Heads of these Roots spring a few small narrow Leaves, broadest at the End, and round-pointed, of a yellowish-green Colour, and growing of a yellow Colour at the End of Summer; from among these arise small Stalks, scarce a Span high; having two small Leaves set opposite at a Joint; and, on the Top, a few little white monopetalous Flowers. It grows in the Alpine Countries, between Italy and Germany; and flowers in August. The Root is principally used.

Celtic Nard is heating and attenuating, accounted alexipharmic and sudorific, and good against malignant Distempers, and all Kinds of Poisons. It opens Obstructions of the Liver and Spleen; provokes Urine, and the Menstrues; and is an Ingredient in the Theriaca and Mithridate. *Miller's Bot. Off.*

The Plant is a Drier, and has the same Virtues as the Indian Spikenard; but is more effectual in provoking Urine, strengthening the Stomach, and discussing Flatulencies; outwardly, it is an Ingredient in the Composition of Malagmas and Ointments. *Schroder.* The Hungarians frequently use it in Lo-

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tions of the Head ; as it agrees in Genus, and external Appearance, with *Valerian*, so it seems to us to agree with it in Virtues. *Raii H. P.*

**NARDUS INDICA, & SPICA NARDI.** Offic. *Nardus Indica*. Ger. 921. Emac. 1080. *Raii Hist.* 2. 1910. *Nardus Indica vulgaris*. J. B. 3. *Nardus Indica sive Spica Nardi*. Park. Theat. 1595. *Nardus Indica, quæ Spica, Spica Nardi, & Spica Indica Officinarum*. C. B. P. 13. Theat. 194. **INDIAN SPIKENARD.**

This is the Head of a Root, consisting of Spikes of a reddish-brown, or iron Colour, from an Inch and an half, to two or three Inches long, and about a Finger thick, made up of fine slender Fibres, matted close together ; and seem to be nothing but the Remains of the Fibres of the old decayed Stalks, having small stringy Roots at the Bottom, about as thick as a Packthread. The whole Spike has a strong aromatic Smell, and a warm bitterish Taste. It is not known what Plant this belongs to ; but it is supposed by the best Judges, to be the Head of the Root of an *Indian Cyperus*. It grows in some Parts of the *East-Indies*.

Spikenard is reckoned to be stronger, and more prevalent, than the *Celtic Nard*, being heating, opening, alexipharmic, and good against all contagious Distempers, and venomous Bites ; and is of great Service against Stoppages of the Womb. It is put in a pretty large Quantity into Mithridate and *Venice Treacle*. *Miller's Bot. Off.*

The *Nardus Indica* is the Root of a Plant of the *East-Indies*. What look like the Filaments of the Root, are not properly such, but the Remains of the decayed Leaves. It is a very good Attenuant, is used in Colics, and promotes Sweat. It is an Ingredient in many Electuaries, and other Compositions, used externally ; such as the Oil and Ointment of Spikenard. *Galen* relates, that he cured an Emperor of the Colic in his Stomach, by rubbing that Region with this Ointment. This Spikenard may be given inwardly, from half a Dram to a Dram ; and, in Infusion, from half an Ounce to an Ounce and half. *Geoffroy*.

I am of Opinion, says *Ray*, with *J. Bauhine*, *Garcias*, and other skilful Botanists, whatever *Anguillara* and others have said to the contrary, that our Spikenard of the Shops is the true and genuine *Indian Nard* of the Antients. *Garcias* assures us, that there are not different Species of Nard ; for he knew but one, and that grew near the River *Ganges* on a Mountain, one Side of which faces the East, and the other the West, which look towards *Syria* ; a Country separated from *India* by a vast Tract of Land : Nor is one Plant better than another, or has a Spike considerably longer than another. Nor can it be infer'd, from the vast Price at which *Pliny* tells us, *Lib. 12. Cap. 12.* it was sold in antient Times, that our Nard is not genuine ; for the *Indies* are now more open and known, than they were in the Time of *Pliny* ; and Spices are imported among us in greater Plenty, and less adulterated, than they were in his Days, since the Navigation to *India*, round the Coasts of *Africa*, has been discovered ; and, consequently, these Drugs are sold much cheaper.

It is a great Question among the Learned, what Part of the Nard we ought to reckon the *σάχυν*, or Spike ; some will have it to be the Root, others deny it ; of the former Opinion was *Galen* 1 *Antid.* 14. where he says, *ὁ Ἀνδρομάχου Ἰνδικὴν ρίζαν, &c.* “ *Andromachus* orders for an Ingredient *India Nard*, which we call *Spikenard*, from its Resemblance to Spikes, tho' it be a Root.” To this the others oppose the Authority of *Dioscorides*, who says, that it has several Spikes proceeding from the same Root, both leafy ones, and such as consist of a Complication of Fibres. The Truth is, that the little Stalks, beset with Multitudes of capillaceous Leaves, are called *Spikes*, which, tho' they seem to be Roots, are not really such, but have under them small Roots or Fibres, by which the Plant attracts Nourishment ; and these *Dioscorides* calls *Roots*, and distinguishes them from the Stalks. It is certain, however, that this Plant produces Stalks, which have their Tops adorned with Spikes or Panicles, after the Manner of Grasses, or Plants resembling them.

The Nards of *Dioscorides* are heating and drying, and provoke Urine ; for which Reasons, they stop a Looseness, being taken inwardly ; and stop uterine Fluxes, being used as a Pessary. Taken in cold Water, they remove a Nausea and Cardiognus, and relieve such as are oppressed with Flatulencies, or labour under the *Icterus*, or hepatic or nephritic Disorders. Boiled in Water, and an Infusion prepared thereof, they remove an Inflammation of the Uterus. They repress the superfluous Humours in the Eyelids, by astringing and condensing their Edges. The Powder thereof, sprinkled on moist and sweaty Bodies, takes off their rank Smell. Nard is an Ingredient, also, in Antidotes. Reduced to an impalpable Powder, then made with Wine into Troches, to be reposit in a new Vessel not pitched, they enter the Composition of ophthalmic Medicines. *Raii Hist. Plant.*

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**NARDUS MONTANA.** Offic. Ger. 920. Emac. 1079. *Nardus montana tuberosa*. Park. 116. *Nardus montana radice olivari*. C. B. 165. *Raii Hist.* 1. 392. *Valeriana Nardus dicta radice olivari*. Hist. Oxon. 3. 103. **MOUNTAIN SPIKENARD.**

This is the Root of a Species of *Valerian*, which grows in the Mountains of *Leon* in *Spain* ; but we are not certain what the Antients called by this Name. It is not much used in Physic ; but its Virtues are like those of the *Nardus Celtica*, and *Nardus Indica*. *Geoffroy*.

It has the same Virtues, according to *Dioscorides*, and serves for all the same Purposes, as the *Celtic Nard*.

**NARDOSTACHYS.** Spikenard. *Paulus Ægin.* Lib. 7. Cap. 3.

**NAREGAM**, a common Name for two Species of *Indian Lemon-tree* ; the first of which,

*Mal-Naregam*, is a Sort of Dwarf Lemon-tree, which grows in *Zeilon* and *Malabar*.

The Leaves of this Tree, boiled in Oil, and applied to the Head, ease the Pains thereof ; and their Juice is reckoned an excellent Errhine for purging the Head. The exprelled Juice of the Fruit cures that endemial Cachexy, the *Pitao* ; and, of the Root, are prepared antispasmodic Pills. This Fruit differs from a Lemon, only in having but one Seed.

The other Species is the

*Tsjeron-Katou-Naregam*, which is distinguished by its small Fruit ; this grows in mountainous Places throughout *Malabar*, especially about *Candemate*, and has always Flowers and Fruit upon it.

The Leaves are accounted a present Remedy for the Epilepsy. The Root provokes to Stool, drives out Sweat, and cures the Colic and Cardialgia. The dry'd Fruit strengthens the Stomach, and restores the injured Fermentation of the Stomach ; it is, also, a potent Preservative against the Contagion of the Small-pox, and malignant Fevers ; and is esteemed an excellent Antidote against several Sorts of Poison. *Raii Hist. Plant.*

**NARES.** The Nostrils.

Among the various Disorders incident to the Nostrils, none are of greater Importance than Hæmorrhages, which arise from a copious Conveyance of Blood to the Head ; in consequence of which, the small Arteries in the *Tunica Pituitaria* are preternaturally filled, and their Extremities, being too much distended, are at last opened, and discharge their contained Blood.

Such is the Fabric of the Nostrils, that they are easily subject to Eruptions of Blood ; for, in their internal Parts, the Blood-vessels divided, into highly minute Parcels, are copiously distributed through that Coat which covers the *Vomer*, the *Offa Spongiosa*, and the ethmoidal Bones, and are, at the same time, externally covered with a very slender Membrane. Hence, when the Blood is copiously convey'd to the Nostrils, it is with Difficulty returned through their small Veins, but easily stops in the minute Arteries, distends their Extremities, bursts them, and produces an Hæmorrhage. It, also, sometimes happens, that this Blood elevates the Extremities of these minute Arteries into small Aneurisms, which afterwards prove the Occasion of a copious Dropping of Blood.

That in Hæmorrhages of the Nose there is a copious and violent Afflux of the Blood and Humours to the Head and Nostrils, is sufficiently obvious from the violent Motion of the Heart and Arteries, the strong Pulse, especially in the Neck and Temples, the Sense of Weight in the Head, the Redness of the Face, the Swelling of the Face and whole Head, a Driness and Heat of the internal Nostrils.

The principal Cause of this Congestion is the unequal Progress of the Blood, especially through the Ducts of the external Parts, whether conveying Arteries, or returning Veins : By which means it happens, that the Blood is too scantily conveyed to some Parts, and too copiously to others, where it breaks the Vessels, and discharges itself.

Whatever therefore contributes to produce such an unequal Motion of the Blood, in a proportionable Degree, excites Hæmorrhages. Now all Hæmorrhages, and more especially that from the Nostrils, are generally accompany'd or preceded by a Stricture of the Skin and external Parts, a Detumescence of the Vessels, an Horripilation, a Refrigeration, Costiveness, a Retention of the Flatulencies, Rumbings in the Abdomen, Lassitude of the Limbs, and Pains of the Belly. Hence 'tis obvious, that the Cause of this unequal Circulation of the Blood is a certain Stricture of the Fibres, and most minute Vessels, especially in the Extremities ; for when, by means of this spasmodic Stricture, the Vessels, especially such as return the Blood, Lymph, or any other Humours, as, also, the excretory Ducts of the Skin, through which, according to the Laws of Nature, the serous Part of the Blood ought to be eliminated, are compressed, the Blood regurgitates to the large internal Vessels, by which means a greater and quicker Contraction

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traction of the Heart and Arteries is produced, and the Blood itself more powerfully convey'd to the weak Parts, especially where its Congestion and Deposition lay a Foundation for Hæmorrhages, and other Disorders.

From what has been said, we may easily conceive how other Causes concur to produce Hæmorrhages, or Discharges of Blood from the Nostrils; for the Reason is obvious, why those who abound in Blood and Humours, indulge themselves in Rest, and a sedentary Life, are voracious, and live in a delicate manner, and, at the same time, incautiously expose their Bodies, especially their Feet, to the Cold, whilst they are discomposed by unusual Commotions, either of Body or Mind, take such things as exagitate the Blood, such as Aromatics, spirituous Substances, Ales, Wines, hot and volatile Medicines, or use too hot Baths, are subject to Hæmorrhages from the Nose; because, in such Patients, the equable Circulation of the Blood is everywhere intercepted, and cannot be equally distributed to all the Parts, through the minute infarcted Vessels; but, by acting too forcibly on the Parts thus disposed, makes an Eruption.

Nor is it an hard Task to assign a Reason, why these Hæmorrhages appear in certain Constitutions of the Atmosphere; for 'tis certain from Experience, that, especially in the Spring and Autumn, about the Equinoxes, many Persons, even advanced in Years, are subject to Hæmorrhages of the Nose, which afford them great Relief; for then the State of the Air is very unequal, and frequently changes from cold to hot, and from dry to moist: Now, since, by this frequent Vicissitude, the Tone of the Skin is weakened, and consequently Perspiration impaired, it is not to be wonder'd at, if the ordinary Course of the Blood is disturbed, and a Foundation for Hæmorrhages laid.

The same Reason is to be assigned, why Hæmorrhages from the Nose are sometimes epidemical, when a moist Constitution of the Air, when the Winds blow from the South and North, is suddenly succeeded by a dry and elastic State of the Atmosphere; for by this means the Exhalation of the Moisture through the Pores of the Skin is disturbed, the serous Part of the Blood is increased, and returned in a larger Quantity to the Heart and large Vessels; by which means their systaltic Motion is render'd strong, and the Impulse of the Fluids more brisk, but at the same time more unequal.

Nor is it more difficult to understand, why rheumatic, arthritic, and nephritic Patients, as, also, such as are subject to sciatic Pains, are often subject to Hæmorrhages from the Nose; for these Disorders are produced by spasmodic Motions and Strictures, by which the Circulation of the Blood being rendered unequal, preternatural Collections and Eruptions of it happen in other Parts. Hence *Hippocrates*, in *Lib. 2. de Prædict.* orders the Physician to ask adult Patients, afflicted with rheumatic or sciatic Pains, whether, in their Infancy, or Youth, they have been subject to Hæmorrhages from the Nose.

A Suppression of the Menses, especially in young and pregnant Women, of the Lochia in Women after Labour, and of the hæmorrhoidal Discharge in Men, frequently produces a Regurgitation of the Blood, the Consequence of which is an Hæmorrhage from the Nose; for no other Reason, than that by the Spasms, with which Hæmorrhages are generally accompanied, the equable Motion of the Blood is destroyed, and the Blood, with an Impetus, forced to the Parts destined for Excretion, where, being denied a Passage, it rushes to any other Parts, and produces an Hæmorrhage.

It also frequently happens, that, in those especially who are of a tender spongy Habit of Body, inclined to Hæmorrhages, an Hæmorrhage of the Nose accompanies Fevers, especially that Kind called a *Synocha*; succeeds those of the Quartan Kind; and precedes the Eruption of exanthematous Disorders, the Measles, and Small-pox. This Phenomenon is owing to nothing but the violent spasmodic Strictures of the nervous Parts; for that these Disorders are attended with such Strictures, is sufficiently obvious from what generally precedes them, that is, a Discharge of thin Urine, Costiveness, Horripilation upon exposing the Skin to the slightest Air, Refrigeration, Inquietudes, and Anxieties, till the Head becoming afflicted with Pain, and the Face red and inflated, the Blood at last makes an Irruption.

'Tis, also, to be observed, that Hæmorrhages from the Nose are very frequent in those who have any large Member mutilated, or amputated; for, after such Misfortunes, the same Quantity of Blood and Chyle remains in the Body, whilst at the same time the Space, in which the Humours were before diffused, is lessen'd: Hence the Blood stagnates in the minute Vessels, and produces irregular Motions towards other Parts.

There is another Cause of the unequal Motion of the Blood, besides Spasms, that is, Infarctions and Obstructions of the sanguiferous Viscera, such as the Liver and Spleen; for, when an Obstruction happens here to the Passage of the Blood thro' the Vessels communicating with these Viscera, its Motion and

Impetus are convey'd to other Parts, and frequently to the superior Parts and Head: Hence it happens, that inveterate Scurvies, Dropsies, and Cachexies, sometimes bring on fatal Hæmorrhages. Thus *Hippocrates*, in his *Treatise de Prædict.* informs us, that Infarctions of the Spleen are accompany'd with Hæmorrhages.

Such Hæmorrhages, produced by various concurring Causes, are discharged either from the Right or Left Nostril, rarely from both; and differ in Quantity, according to the greater or smaller Afflux and Congestion of the Blood to the Head; for sometimes only a few Drops, and at other times a few Ounces, are discharged; and sometimes so copious an Effusion of Blood continues for some Hours, that the Quantity discharged amounts to five or six Pints.

Hæmorrhages of the Nose are in some Patients long, and in others short, and in some more frequent than in others. Thus, they are more frequent in Children, and young Persons, than in Adults, and those far advanced in Age. Men are likewise more subject to Hæmorrhages of this Kind, than Women; since these latter have the redundant Blood evacuated every Month by the Vessels of the Uterus. Hæmorrhages of the Nose are, also, large, and frequent in Persons of a spongy Habit of Body, furnished with small and numerous Vessels: But 'tis otherwise in lean Persons, whose Vessels are large, tho' this Species of Hæmorrhage, when happening to such, is generally very profuse.

'Tis, also, observable, that they who in their Infancy have a copious Discharge of mucid and serous Matter from the Ears, Nostrils, and Eyes, are, after the Years of Puberty, subject to Hæmorrhages of the Nose. 'Tis, also, certain from Experience, that such Hæmorrhages are sometimes hereditary, and convey'd from Parents to their Children. 'Tis equally certain, that no Hæmorrhage more easily returns, than that from the Nostrils, which sometimes recurs every Day, or within a few Hours.

Now, all habitual and frequent Hæmorrhages indicate a certain Weakness of Nature, that is, such a Structure of the Parts of the Body, as favours a slow and unequable Circulation of the Blood. These Hæmorrhages are, however, highly salutary, especially in spongy Bodies, where Stagnations, and other Disorders, are dreaded: Nor in practical Authors are there Instances wanting of Vertigos, Dimness of Sight, violent Head-achs, a Phrenitis, Convulsions, and Epilepsies, terminated by Hæmorrhages of the Nose: Whereas, on the contrary, *Hippocrates*, almost every-where, and especially in his *Prædict.* and *Coacæ Prænotiones*, informs us, that Vertigos, Apoplexies, Epilepsies, Convulsions, Ringings of the Ears, with Difficulty of Hearing, and a Gutta Serena, are produced by a preposterous Suppression of Hæmorrhages from the Nose.

Those Hæmorrhages from the Nose are generally critical and salutary, which, in that Species of Fever called *Synocha*, happen on the semicritical Day, that is, between the third and the fourth Day, or on the critical Day itself, which is the seventh, since they terminate these Fevers, which generally arise from a Plethora.

'Tis not only observed by *Hippocrates*, but, also, confirmed by Experience, that those who in their Childhood have been subject to frequent Hæmorrhages from the Nose, in their Youth readily fall into violent Disorders of the Breast, such as Spittings of Blood, Pleuritis, Peripneumonies, and a Phthisis; and are, when advanced to Men, subject to the hæmorrhoidal Discharge, rheumatic, arthritic, ischiadic, nephritic, and colic Pains.

Violent and enormous Hæmorrhages from the Nose, when arising from excessive Spasms of the internal Parts, and succeeded by Refrigerations of the Extremities, and Deliquiums, generally terminate in Death. This I had an Opportunity of observing in a Woman, in whom, when dead, the Carotids were preternaturally distended, and as large again as in their due State; whilst at the same time the inferior Portion of the Colon was greatly constricted.

Hæmorrhages accompanying exanthematous or malignant Fevers, where the Strength is much impaired, by destroying the Strength still more, by diminishing the Course of the Blood to the Surface of the Body, and lessening the Expulsion of the peccant Matter, are therefore highly dangerous. In chronical Disorders, also, where the Viscera are destroy'd, Eruptions of Blood prove mortal; for which Reason Hæmorrhages from the Nose generally are fatal to dropical and cachectic Patients.

#### THE CURE.

When a violent Hæmorrhage threatens Danger, and too much impairs the Strength, the Assistance of a Physician becomes necessary. The principal Intentions of Cure are, after discovering the genuine Causes, to remove them by proper Measures.



When, therefore, a Redundance of the Blood and Humours, together with their expansive Force and Turgescence, hinders their free and equal Passage through the minute Vessels, and produces enormous Hæmorrhages, which principally happens in young Persons in the Spring, after violent Exercise, or the Use of such spirituous things as throw the Blood into preternatural Commotions, besides Venesection, which diverts the Course of the Blood from the Head, Preparations of Nitre are, above all other things, efficacious for checking the Orgasm of the Humours, and relaxing the spasmodic Stricture of the Parts. Thus *Paracelsus*, and *Hildanus*, in all Hæmorrhages, used purified Nitre with great Success: And *Riverius*, in his *Praxis* and *Observationes*, greatly extols this Medicine for stopping all Hæmorrhages. Of similar, tho' somewhat inferior Efficacy, are Acids, whether of the mild Kind, obtain'd from the Vegetable Kingdom, such as the Juices of Lemons and Barberries, the Water and Juice of Wood-sorrel, or of the more strong and powerful Kind obtain'd from the Mineral Kingdom, such as the Phlegm or Spirit of Vitriol diluted, or the Tincture of Roses, and Flowers of the Daisy, prepared with Water of Wood-sorrel and Spirit of Vitriol, and drank with Spring-water; the Efficacy of which is, also, very great in checking the intestine and elastic Force of the Blood.

But, because in these dangerous Hæmorrhages there is generally a certain spasmodic Stricture of the nervous Parts, which is soon succeeded by an unequal Motion of the Fluids, besides the Preparations of Nitre already recommended, we must have recourse to gentle Anodynes, such as Preparations of Poppies, the Water for Instance, the Extract, or the Syrup of wild Poppies, the Syrup of white Poppies, and Emulsions prepared of the Four cold Seeds, the Seeds of white Poppies, and the Waters of the Flowers of the *Egyptian* Thorn, Elder, the Lime-tree, Meadow-sweet, common Chamomile, and Primroses. But, when a violent Impetus of the Solids continues obstinately, we must have recourse to more efficacious Remedies, and exhibit a few Grains of the *Pilulæ de Cynoglossio*: Camphire, also, on account of the sulphureous Exhalations it diffuses, produces a sedative Effect, especially when mixed with Nitre, or diaphoretic Antimony, and exhibited in a small Dose, such a Powder is of very singular Efficacy, especially when any exanthematous Matter proves the Cause of the Hæmorrhage, which it frequently does. But, among all the various Medicines proper for stopping Hæmorrhages, whether from the Nose, or any other Part, none is more safe and efficacious, than the anodyne mineral Liquor, which is saturated with the anodyne Sulphur of Vitriol; and which either alone, or rather with the Powder of Nitre, drank in Spring-water, forthwith checks the violent Orgasm of the Blood.

Besides, when the Disorder is violent, we must divert the Impetus of the Blood from the superior Parts to others: For this Purpose, Venesection in the inferior Parts is to be used. Then we are to prescribe temperate Baths for the Feet, and putting the Hands in warm Water; by which the Fibres are relaxed, the Tone of the vascular Parts remitted, and consequently the excessive Flux of the Blood to the superior Parts prevented.

Besides, as that acrid bilious Matter, which is often the Cause of Flatulencies and Spasms, is, especially in hypochondriac Patients, the Occasion of immediate Hæmorrhages; in order to make a Derivation, nothing is more proper than such things as gently purge the Intestines. These, as they are exhibited internally, ought not only to be mild, but, also, possessed of a corroborative Quality, such as Preparations of Rhubarb, Powder of Rhubarb in Substance mixed with some Grains of Nitre and Sal Polychrestum, or Raisins impregnated with Rhubarb. The same Intention is, also, answered by emollient, carminative, temperate, and oleous Clysters, which soothe the Spasms, and carry off the Flatulencies of the Intestines.

The Afflux of the Blood to the Head may be prevented, and the weaken'd Parts corroborated, by applying Refrigerants, mixed with Discutients, to the Forehead, Nostrils, and Neck. Of this Kind, the most efficacious is an Epithem, prepared of Vinegar of Roses, Vinegar of Rue, Nitre, Camphire, and the Oil of Rose-wood, which may be, also, drawn up the Nostrils.

They who are subject to frequent and violent Hæmorrhages from the Nose, ought, in order to prevent their Return, to be very careful in preserving their whole Bodies, and especially their Feet and Heads, from the Cold, lest Perspiration should be hinder'd, which as it greatly contributes to all other Hæmorrhages, so in a particular manner to this from the Nose; since by this means, a Redundance of Blood, and impure Humours, is generated. 'Tis therefore expedient in such a Case, besides great Temperance, to promote this Excretion by Exercise, and Infusions of Pauls Betony, and the Tops of Yarrow.

They who in their Infancy have been subject to frequent

Hæmorrhages, if these afterwards cease, and Venesection is neglected, ought carefully to abstain from violent Exercise, and loud Crying or Speaking. I have, also, observed Hæmorrhages, in School-masters, succeeded by almost incurable Disorders of the Head, such as a continual Ringing of the Ears, a Head-ach, and Palsy.

But, after violent Hæmorrhages, we are, above all things, to guard against exposing the Body or Head to the Cold, as, also, against Frights: For, by a Neglect of this Kind, we frequently observe a violent Torpor, Stupor, and Oppression, Pain of the Head, accompany'd with a Pain of the Eyes, a Dimness of Sight, a Vertigo, an intolerable Weakness of the whole Body, and Danger of an Apoplexy; for the more the Blood is exhausted from the Body, the more carefully we are to guard against such things as repel it from the external to the internal Parts.

For this Reason, through the whole Course of profuse Hæmorrhages, we are to be very cautious both of snuffing up the Nostrils, and applying externally by way of Epithems, cold and astringent Substances; since by the unskilful Use of these, the Nostrils being obstructed, the Force of the Blood is derived either to the *Aspera Arteria* and Lungs, and endangers a Suffocation; or to the internal Parts of the Brain, and lays a Foundation for an Apoplexy. It is better and more expedient not to use those external Applications till Baths for the Feet have been used, the Body render'd soluble by Clysters, and Venesection in the Foot, if necessary, has been performed.

Hæmorrhages arising from a Redundance of Blood, an Omission of accusom'd Venesection, a Suppression of the Menfes, the Lochia, or hæmorrhoidal Discharge, are more salutary than dangerous; for which Reason they ought not to be forcibly stopp'd. But if they are immoderate, besides the deriving Remedies already mentioned, Corals mixed with the *Species de Hyacintho* and Nitre, may be exhibited in a proper Quantity of Citron-juice.

We must, also, be careful not suddenly to stop these Hæmorrhages when returning at certain Periods, either by internal Medicines, or external Applications; for by this means we frequently observe Lethargies and Apoplexies produced in old Persons.

I have known Hæmorrhages of the Nose cured by drinking two or three Quarts of Spring-water every Day, provided the Surface of the Body is kept duly warm, especially in cholerick and bilious Patients, and in Cases where there is an intense Orgasm of the sulphureous Parts, which is by this means excellently alleviated, and a gentle Sweat, for the most part, happily excited. For which Reason 'tis proper, that those who are subject to immoderate and frequent Hæmorrhages, should use pure Spring-water for their common Drink.

In symptomatic Hæmorrhages, and those accompanying exanthematous Disorders, Measles, Small-pox, Scorbutic Purple Fever, and Petechiæ, it is not expedient to exhibit any other Medicines, than such as, by moderating the intense Heat, may gently promote Perspiration. For this Purpose,

Take of the Water of Chamomile-flowers, four Ounces; distil'd Vinegar, one Ounce; of Crabs-eyes, and Diascordium, each one Dram; of Nitre, one Scruple; and of the Syrup of wild Poppies, a sufficient Quantity; make into a Mixture: Of which, let the Patient take two Spoonfuls every two Hours, and keep himself moderately warm in Bed; and, if the Disorder is malignant, a Powder composed of diaphoretic Antimony, depurated Nitre, and Camphire, is to be exhibited.

They who in their Infancy and Youth have been subject to frequent Hæmorrhages, which afterwards stop, are very often afflicted with Disorders of the Head, Eyes, and Ears, a Swelling of the Parotid Glands, or with an Epilepsy or Phrenitis, either of the idiopathic or symptomatic Kind. In this Case, if the Head, and its Vessels, are turgid with Blood, the Nostrils are by some external Artifice to be stimulated to a Discharge of Blood; and this is most generally done by thrusting a Quill, a Straw, or a Scarificator, into the Nostrils. The same Piece of Practice is, also, highly beneficial, when in synochous and sanguine Fevers there is a violent Impetus of the Blood to the Head, which produces terrible Symptoms, unless it be discharged.

Impetuous Hæmorrhages, arising from violent Commotions of Mind, require a peculiar Treatment; for, if they are produced by Anger, antispasmodic nitrous Powders, successively exhibited in pure cold Water, are highly beneficial; but, if they arise from excessive Sorrow, Diaphoretics mix'd with Antispasmodics, or the anodyne mineral Liquor, mix'd with a fourth Part of the Spiritus Rustii, and used with a moderately diaphoretic Regimen, are sufficient to produce a Cure.

When Patients of cachectic Habits labour under Hæmorrhages, Preparations of Rhubarb, variously and frequently exhibited,



hibited, whether alone, or mixed with digestive Salts, are, from Experience, found to be preferable to all other Medicines. But, when the Viscera are affected with a scorbutic Taint, the Cure is most properly attempted by Whey, interposing, at the same time, Preparations of Rhubarb. *Frederic Hoffman.*

#### A POLYPUS OF THE NOSE.

The internal Parts of the Nose, as well as other Parts of the Body, are often subject to fleshy Excrescencies, call'd Polypuses, tho' they seldom have more Feet or Roots than one. This Disorder is, by some, called Sarcoma; and, by others, Hyperfarcoma. But these Caruncles are of various Sizes and Consistencies; sometimes soft, and capable of Elongation, when drawn; sometimes, tho' very seldom, hard, and, as it were, rigid; sometimes white, and sometimes of a pale-red Colour: At first, they are, for the most part, small; but, in Process of Time, they increase, some slower, some faster; so that I have seen some, in three or four Days, hang out of the Nose: Tho' they are generally free from Pain, yet sometimes they are attended with Pain and Hardness, become livid, and incline to a Cancer. Some are confin'd to the Nose, others hang down to the Lips; some fill, greatly expand, and enormously dilate the Nose; some appear as one Caruncle, with an equal Surface; others like a Cluster. Some, again, grow backwards thro' the Aperture, by which the Breath descends from the Nose to the Fauces, and are visible behind the Uvula; and then occasion not only a great Difficulty of Speaking and Swallowing, but likewise of Breathing, and almost strangle the Patient. Sometimes they expand themselves both through the Nose, and through the Fauces, though both Nostrils are seldom obstructed by them. The Polypus, as we have already observed, has generally but one Root, and that slender; sometimes, indeed, it is thick, and furnished with large Veins; however, as it appears now-and-then with many Roots, the Antients seem to have derived the Name from thence. This Excrescence often proceeds from the inferior or middle Part of the Nose, and sometimes from the posterior and upper Part, and even from the Sinuses of the Cranium and Os Ethmoides; but it is, in general, formed in and from the pituitary Membrane, and particularly by an Obstruction of one or more of its Glands; which, being gradually increased by noxious Humours, fills the Nose, or hangs down below it; and, consequently, it seems nothing more, than a morbid Expansion and Elongation of the Glands, and that spongy Membrane. But, in my Opinion, the Sarcoma Nasi is of a very different Nature; for a Polypus is generally soft, and hangs like a Fig, by a slender or thick Root, as by a Stalk; whilst the Sarcoma is sometimes soft, sometimes hard, and fixed upon a large, firm, and immovable Basis.

From the preceding Account of the Nature and Disposition of a Polypus, we cannot be at a Loss for the Diagnostic and Causes of it. And first, a white, redish, soft Polypus, without Pain, is of a mild Nature: On the contrary, that is dangerous, which is painful, hard, livid, or black, or discharges a Pus, or acrid and fetid Humours; for such tend to a Cancer. The Causes are often latent and internal; though it is sometimes produced by external Violence. By a latent Cause, we mean an Inspissation of corrupt and glutinous Blood in the small Vessels and Glands of the pituitary Membrane; for that soft and spongy Membrane may be easily distended by a Congestion of noxious Humours. The external Causes may be violent Falls or Blows, too frequent an Introduction of the Finger into the Nose, an Irritation of the pituitary Membrane, and too strong sternutatory Powders. Lastly, the manifest internal Causes are frequent Catarrhs, a Desfluxion, Ulcers of the Nose, or too profuse Hæmorrhages. A Sarcoma proceeds from much the same Causes; and both are sometimes attended with a Spina Ventosa, and Caries of the Bones of the Nose: Instances of which have sometimes occurred to me.

The Cure is easier, and the Danger less, when the Polypus is of a favourable Kind; as when it is not seated very far in the Nose, when it has a slender Root, and hangs loosely, or when it is capable of Elongation, and lastly, when the Patient is of a good Habit: On the contrary, when it is inaccessible, has a thick Root, and is incapable of Elongation, the Removal is more difficult, especially if the Patient is afflicted with a scorbutic or venereal Disorder at the same time. The Danger of the Cure is likewise increased, by the Difficulty of suppressing the profuse Hæmorrhage, which attends the Extirpation or Evulsion of a Polypus, especially if it is fixed on a deep and large Basis. If it tends to a Cancer, that is, if it becomes hard, livid, and painful, which is very common, it is safest to palliate the Disorder by Lenitives; for it is as dangerous to irritate this, as other Cancers. In like manner, when the Polypus is inaccessible, or arises from a Spina Ventosa, as I have seen a large one, it is hardly possible, after a Removal, to prevent its sprouting again, unless the Spina Ventosa be first cured.

Further, if it extends to the Fauces, Speech, Deglutition, and even Respiration, are sometimes hinder'd, as *Celsus* observes, and the Cure is extremely difficult. Lastly, when it fills both Nostrils, the Cure is very difficult, because generally it proceeds from some worse Disorder. These Observations are equally true, with regard to a Sarcoma, especially if the Bones of the Nose are affected with a Spina Ventosa.

The Cure of a Polypus cannot be reasonably expected from any thing but a total Removal, which may be accomplished by caustic Medicines, or proper Instruments; and this, either all at once, or at different times. The first may be applied when the Excrescence is soft and small, or short and large, with this Caution, that the Caustic may not corrode the sound Parts of the Nose. Among the mild corrosive Medicines proper for this Purpose, the most celebrated are Powder of Savin, burnt Alum, red Precipitate, white Vitriol, and Hermodactyl-root, either alone or mixed with Honey, or some digestive Ointment, laid on the Polypus with a Tent; or, if it is seated externally, without a Tent, by which, slight ones are sometimes removed. *Potterius* says, the Powder of Heliotropium, or Scorpionwort, introduced into the Nose with Cotton, twice a Day, will remove a Polypus very readily, and with little Pain; but we are left in the Dark as to the particular Species of Heliotropium, or Scorpionwort, proper for this Use. *Rulandus* recommends a Mercurial Water, with which he affirms he has cured a Polypus, by wetting it every Morning and Evening. To this Class, also, belong the Unguentum Ægyptiacum, the Unguentum fuscum of *Wurtzen*, the Oil of Tartar per Deliquium, the Essence of Savin, and particularly an Essence prepared of Sublimate Mercury and Spirit of Wine, with which *Wedelius* informs us he cured a certain Polypus. According to *Nuck*, in *Operat. Chirurg. Cap. de Polypa*, great Service is done in Polypuses by Lime-water, especially if, after mixing a Grain or two of Sublimate Mercury with it, it is made into a phagedenic Water. The same End is, also, answered by precipitate Mercury, upon which some Spirit of Wine has been deflagrated; by Water saturated with Sal Ammoniac; and, if we may believe *Musitanus*, by the acid Spirit of Sal Ammoniac. If these prove ineffectual, then stronger Remedies must be applied; such as the Lapis Infernalis, Sublimate Mercury, the Arcanum Corallinum, and others of a like Nature; but these should be mixed with Honey, or Basilicon, and laid on with great Care, that they may not corrode the sound Parts; and, if the Polypus lies concealed in the Nose, a small Portion of the Medicine should be introduced by a Quill, or some other Tube. Of equal Virtue in removing a mild Polypus, are the Spirit or Oil of Vitriol, Aqua-fortis, and Butter of Antimony, when applied with a Feather or Pledget: Whatever is eroded must, at every Dressing, be removed by Scissars, or a Pair of Forceps. *Thibaut* followed this Method: He laid two Plaisters between the Polypus and sound Part, for the Preservation of the latter; then he carefully applied to the former Butter of Antimony, with a Tent or Pledget; and next, to prevent too deep a Penetration, he washed it off with warm Water. By this Method *Garengeot* affirms that he performed the Operation in a Moment; but this Author does not tell us, whether he applied the Caustic more than once, tho' I am persuaded it must be frequently repeated; for a single Application will hardly produce the desired Effect.

But, in general, Instruments are preferable to Caustics; and this Operation may be performed by various Methods. Before the Operation the Patient should be prepared, and then seated opposite to the Light, an Assistant reclining his Head backwards, and securing it with his Hands. When this is done, the Surgeon may choose either of the following Methods, which seems to him best suited to the Circumstances of the Case. We shall begin first with the Method described by *Celsus*: "The Polypus, says he, should be separated from the Bone by a sharp Instrument, in the Shape of a *Spatha*, taking care not to wound the Cartilage beneath it, which would be difficult to cure. After the Separation it must be extracted with a Steel Hook; then, to suppress the Hæmorrhage, the Cavities of the Nose should be filled up with a Pledget, or some folded Lint moistened with a proper Medicine: After the Suppression of the Hæmorrhage, the Ulcer must be deterged with Lint. When it is cleansed, the Cicatrix must be formed by injecting proper Medicines, till the Cure is completed." The Method proposed by *Ægineta* is not very different from this. He orders the Patient to be placed against the Light, the Surgeon to open and dilate his Nose with his Left Hand, whilst, with his Right, he extirpates the Polypus circularly, with a sharp Spatula, made for that Purpose, in the Shape of a Myrtle-leaf; applying the Edge of the Instrument to that Part where it adheres to the Nose, then, turning the Instrument, to extract it with the Handle. To induce a Cicatrix, he uses leaden Pipes. We discover the whole Polypus to be removed, first by the Sight, then by the Voice, and Freedom of Respiration thro' the Nose. *Albu-*



*casus* advises to extract the Polypus out of the Nose with a Steel Hook or Forceps, and then remove as much as can be reached by Incision; and this to be repeated till the Whole is taken off. If the Excrescence cannot be totally removed, *Paulus* and *Albucasis* order a pretty thick Piece of Linen, like a Cord, full of Knots, at a Finger's-breadth, or less, from each other, to be tied to the Remains, and transmitted from the Nose to the Palate; then to be drawn out of the Mouth, which may be done with Forceps. The two Ends of this Cord, one hanging from the Nose, the other from the Mouth, should be drawn backwards and forwards, till the Remains of the Polypus are destroyed; for which Purpose the Cord should be dipt in Unguentum *Ægyptiacum*. *Fabricius ab Aquapendente* rejects these Methods, and endeavours to establish one of his own, which is performed by a sharp Forceps. These he gently introduces into the Nose, to the Root of the Polypus; and with them both extirpates and extracts the Whole, or as much as he can reach. This he justly prefers to all others; and says, if the Whole cannot be removed at once, it may be repeated, till nothing remains. If the Wound bleeds plentifully, which is not very common, he orders the Hæmorrhage to be suppressed with red Wine alone, or mixed with Alum. *Sennertus* and *Glandorp* followed this Practice, and I myself have known it succeed often.

There are many other Methods of curing a Polypus. Thus *Marc. Aurel. Severinus* has found from Experience, that a recent Polypus may be extirpated by repeated Puncturation, or Scarification, with a Knife or Lancet. Some recommend the actual Caustery; but others reject it, as attended with violent Pain, and Hazard of injuring the sound Parts. Some prefer the falciform Knife of *Glandorp*, represented by *Andreas a Cruce*, as the properest Instrument to cut the Excrescence, which is to be duly extracted with an Hook, or Ligature, made upon it before the Incision. *Mesue* removes a Polypus hanging out of the Nose by a slender Root, with a Pair of Scissars; but, if it descends to the Fauces, he draws it forward with a Pair of Forceps, and amputates it near the Root with red-hot Scissars. Others esteem a Separation by Ligature as the safest Method, because this is not attended with any profuse Hæmorrhage. For this Reason *Glandorp* passes a strong waxed Thread of Silk round the Root, ties it in a Knot, and cuts off the Caruncle near the Ligature. This may be more commodiously performed, by first extracting the Polypus sufficiently out of the Nose with the Forceps, *Tab. XL. Fig. 9.* or *10.* but this must be done gently, to prevent a Rupture of any Part of it, before a Ligature is applied. The Thread must be left, till it is digested off spontaneously. Thus we avoid an Hæmorrhage, which, especially after Evulsion, is often large enough to destroy the Patient. The Polypus, after the Ligature is applied, may remain entire, till it falls off spontaneously with the Thread; which Piece of Practice I have sometimes used. But, if it does not decay by the first Ligature, it will be proper on the second and third Day to renew it: Thus I cured a noble Lady in four Days, without any Pain, or Profusion of Blood.

This Lady was above seventy, in all other respects well, and had before been subject to frequent Hæmorrhages of the Nose; which being suppressed by cold Water, she at length perceived a fleshy Caruncle growing in her Left Nostril, which not only filled, but distended her Nose to an indecent Size, so that she could hardly breathe thro' it. After having consulted many Surgeons and Physicians, who applied Caustics to no Purpose, (for what they consumed one Day, grew again the following) she applied to me. Upon examining her I found a Polypus, of a Colour somewhat ruddy, about the Size and Shape of a Damson; Part of which hung out of the Nose, whilst the greater Part was concealed within, and distended the Nostrils enormously. It could not be extracted, on account of the Rigidity and Shortness of its Root; but, upon a more accurate Examination with a Probe, I perceived it grew from the middle and lateral Part of the Nose. As the Lady and her Friends disapproved of Excision, or Evulsion, and as Caustics had been applied without Success, I considered whether it was not possible to relieve the Patient by Ligature. But here occurred a Difficulty; for the Polypus was seated deep in the Nose, and filled up its Cavity, so that I was at a Loss how to convey the Thread round the Basis: However, while the Patient was preparing, I contrived the Instrument represented (*Tab. XL. Fig. 12.*); and used it with Success. I transmitted a double strong Thread of Silk through the Aperture B, at the crooked End; and, seating the Patient opposite to the Light, I elevated and distended the Pinna Nasi with my Left Hand; then, taking the Handle A in my Right Hand, I cautiously conveyed the End upwards between the Pinna and Polypus, till I found it was above the Root, which, by the external Side of the Nose, appeared to be about the Middle. After this, turning the Handle upwards, I brought the Apex, which is obtuse, lest it should hurt the Nose, into View; then took hold of the

Thread, and extracted the End of it out of the Nose: I next depressed the Handle gently, and at length drew out the whole Instrument, leaving the Thread behind round the Root; then tied it in a double Knot. Next Day I repeated it, and again the third Day, and drew the String somewhat tighter; thus the Polypus became hard and black. On the fourth Day, when I pulled the Excrescence and String a little, to see whether it was loosened, the Polypus, to the great Surprise of the Patient and Spectators, separated, without any Pain or Hæmorrhage. The Nose afterwards recovered its natural Shape, and the Patient breathed freely through it.

But, when the Polypus is seated very deep in the Nose, or grows from the Sinuses of the Cranium, this Method will prove ineffectual, as it is impossible to extirpate it totally. For this Purpose the Surgeon, according to *Rigæus*, should have a blunt Forceps, called a *Crow's Bill*, either like that (*Tab. XL. Fig. 9.*) from *Palsyn*, or rather that (*Fig. 10.*) with a perforated Beak A A, to hold the Polypus firmly, and gently twist and extend it, till the Root breaks, and it is extracted. If the Polypus hangs down behind the Uvula to the Fauces, and cannot be held by the Forceps, and removed with the Scissars, the only Method is to twist and extract it gently with the curve Forceps, (*Tab. XL. Fig. 11.*) or with the Stone Forceps, (*Tab. XLIX. Fig. 6.*) being, at the same time, very careful not to take hold of, pinch, lacerate, or wound, the Uvula; though *Petit*, for the easier Extraction of a large and dangerous Polypus, cut the Velum Pendulum Palati in two Places. When a Polypus extends into the Nose and Fauces at the same time, the anterior Part must be first removed.

When the Hæmorrhage is inconsiderable, it may be permitted till it ceases voluntarily, or is suppressed by snuffing up red Wine alone, or red Wine impregnated with Alum; but, when it is profuse, the Patient should snuff up some highly rectified Spirit of Wine, Vinegar, acid Juice of Pomgranates, some styptic Liquor, or any Water or Powder, adapted to suppress the Bleeding of Wounds, and fill his Nose with Lint. If this miscarries, he should dip the Lint in the Medicines already recommended, and secure it with a Thread, so that it may be extracted, if necessary.

*Le Dran* has proposed a peculiar Method for stopping the Flux of Blood. He introduced a crooked Forceps, very plain and perforated in the Beaks, through the Nose to the Fauces, with his Left fore Finger; to the End of which he joins several Threads, in such a manner, that they may be easily separated; these he puts into the Mouth, and conveys them behind the Uvula, till he can reach the Knot, which is necessary at one End, with the Forceps; he then extracts the Forceps, drawing one End of the Thread out of the Nose, while the other hangs out of the Mouth. This Seton ought to be long enough, and two thick Bundles of Lint, the first dry, the other dipt in styptic Liquor, must be fastened about two Hands-breadth from the End. He next draws the Seton thro' the Nose, so that the first Dossil expels the Blood, lodged in the posterior Part, through the fore Part of the Nose; and the other, about a Thumb's-breadth from the former, closes the posterior Part, and prevents the Blood from flowing into the Fauces, which is very inconvenient to the Patient when he coughs; and, if the anterior Part of the Nose is filled with Lint, dipt in any styptic Liquor, upon reaching the Part whence the Blood issues, the Veins will be constricted, and the Hæmorrhage suppressed.

*Paulus Albucasis*, and others of the Antients, drew a Cord, full of Knots, backwards and forwards, through the Nose; not so much with an Intention to suppress the Flux of Blood, as to take off the Remains of the Polypus: This Cord they dipt sometimes in the Unguentum *Ægyptiacum*. And though this Method is, by many, rejected as cruel, and ineffectual, *Le Dran* renewed it, in a Case where the Root of the Polypus adhered to the lowest Part of the Nose above the Palate, and the back Part near the Vomer, and could not be removed by any other Means. He therefore passed his Seton, without Knots, through the Nose, in the preceding Method, and dipt it in suppurating Medicines, which he continued for twenty Days, till the Root was consumed by Suppuration, and the Patient restored to a Freedom of Breathing: At last he used Desiccatives, and thus cured his Patient within the Space of a Month.

*Garengot*, and others, in case of a Polypus whose Root cannot well be found, advise to open the Nostrils with a Knife, according to the Practice of *Hippocrates*, and *Guido de Cauliaco*, who afterwards cauterized the Root. *Celsus* likewise recommended this Method for an Ozæna. But, for my Part, I would rather dissuade from this Practice, both on account of the violent Pain, and unseemly Cicatrix attending it; besides, the Polypus may sometimes sprout again, as I have seen, and *Hutter* relates. However, when an Incision is necessary, it should be made in the Sulcus of the Nose, near the Cheek, that the Cicatrix may be less unsightly.



To heal the Wound, and prevent a Return of the Polypus, the Patient should snuff up his Nose, several times in a Day, Spirit of Wine, mixed with Honey of Roses; or some Lime-water may be snuffed up, or injected by a Syringe; or rather the Nostril should be filled with Lint, dipt in it; and this is to be continued for several Days. If we see any Remains of the Polypus, they must be removed with a Forceps, or taken off with a little of the Unguentum Ægyptiacum, mixed with the preceding Injection, or sometimes cautiously touched with the Lapis Infernalis. If the Nose is exactly filled at every Dressing with Lint for some Days or Weeks, there will be very little Danger of a Return; though the Patient, during the whole Cure, ought not only to observe a proper Regimen, but, also, to take proper internal Remedies to correct his Blood, particularly Purgatives, Mercurial Pills, a Decoction of the Woods, and the like; nor must he neglect Bleeding, if he is plethoric.

When the Polypus tends to a Cancer, it must neither be irritated with Caustics, nor Instruments; but rather mitigated by gentle Medicines and Diet, specified under the Article Cancer.

Lastly, a Sarcoma in the Nose is to be treated with the Cathartic Remedies above recommended, with the Addition of proper internal Medicines. If these fail, the Disorder may be deemed incurable, especially if it proceeds from an obstinate Spina Ventosa. For the Observations of various Authors, see *Glandorp*, in his Treatise on a Polypus, and two very remarkable Observations in *Le Drau*, *Obs.* 6. and 7.

#### AN OZÆNA.

The Nose is sometimes so exulcerated, as to discharge a fetid Odour with Pieces of corrupted Bones: This is termed an Ozæna, or foul malignant Ulcer of the Nose; and may be easily distinguished from those Ulcerations which have no Fætor, and proceed from Catarrhs, or the Inclemency of the Air, and are soon cured by Ointment of Cerufs, or any other Medicine of a like Nature. An Ozæna is generally more violent and foul, when attended with a Caries in the Bones: For, at first, the internal Coat of the Nose only is ulcerated, but it extends itself insensibly into the slender Bones, and often into the Sinuses of the Cranium, and the Ossa Maxillaria, and excites a malignant Caries.

It generally arises from an obstinate Catarrh, or some other Disorder of the Nose, especially when the Blood is affected with the Scurvy, or Venereal Disease; but sometimes from acrid Substances, drawn into the Nose with the Air, and corroding its Membrane, as strong sternutatory Powders; and sometimes it proceeds from, or is joined with, a Polypus.

The Signs of an Ozæna are discoverable from what has been already mentioned; but, for the Event, the Cure is certainly difficult, because the Bones, especially the Ossa Spongiosa, are surprisingly tender, and not sufficiently exposed to View; in consequence of which, the Part affected cannot be properly cleansed. For this Reason the Disorder spreads, and, at length, corrodes the Septum, and other Bones of the Nose, in such a Manner, that the external Part is deformed, and the Faculty of Speech and Respiration injured. Some have thought an Ozæna a sufficient Plea for a Divorce.

The Cure should be undertaken by external, but more particularly by such internal Medicines as correct the Blood, as Antivenereals, of which Mercurials and Decoctions of the Woods are the Principal. The Patient, likewise, must be ordered to use a Diet moderate and light, neither strong nor high-seasoned. When the Case is Venereal, the best Remedy is a Salivation.

Externally must be applied the usual Remedies for deterring Ulcers, as the *Aqua Viridis* of *Hartman* snuffed up the Nose, or rubbed on with a Pencil, or injected or introduced with Tents, or Linen Rags rolled up. I have sometimes used a Mixture of Lime-water and Mercurius dulcis with Success. *Mayer* and *Fallop* recommend, in this Case, temperate Alum-water, a Decoction of Savin, and Scordium; in which, when the Disorder is violent, about an Ounce of the *Unguentum Fuscum Wurtzii* is to be dissolved. In Cases of this Nature, great Benefit is, also, produced by frequent Injections of a Liquor prepared of the same *Unguentum Wurtzii*, or the *Unguentum Ægyptiacum*, mixed with Honey of Roses, and Spirit of Wine. Tents, also, prepared of the *Unguentum Fuscum Wurtzii*, and the Addition of a small Quantity of white Vitriol, may be put up the Nostrils, till the Ulcer is cleansed, and the sordid Matter, and the fetid Smell, removed. The Steam of Cinnabar thrown upon live Coals, and cautiously admitted into the Nostrils, is, by some, said to contribute greatly to the Cure of an Ozæna. But, at the same time, these Medicines are to be perfected in, till the Flux of the corrupt Matter, and the fetid Smell, be entirely removed.

If a Caries accompanies an Ozæna, the only remaining Hope of Cure is from a preceding Separation of the carious

Bone. But we know not how to extirpate a Caries of the Ossa Spongiosa, since neither the Cautery, nor Euphorbium, nor any other Remedy; but what have been directed, can be safely applied. However, the Surgeon may securely use the above-mentioned deterring Medicines, for some Weeks or Months, till the Bone is exfoliated. If, in the mean time, any Pieces are loose, he may extract them with the Forceps, to ease the Patient, and prevent an Increase of the Caries; but if, in consequence of their Bulk, they cannot be extracted entire, he may divide them with Scissars, as I have done; and they will fall off spontaneously, or be easily drawn out. After this, the Remedies must be continued, till the whole corrupt Matter and Stench is removed.

*Drake* has mentioned a new Kind of Ozæna, and a peculiar Method of treating it: He says, it is sometimes seated in the Sinus Maxillaris, and there discovers itself by a Discharge of corrupted Matter, attended with a disagreeable Smell from the Nose, upon inclining the Head to the sound Side; for in that Posture the Matter, latent in the maxillary Sinus, is propelled through the Foramen of the Maxilla. But as this, or any other known Method, is insufficient to evacuate the corrupted Matter from this Sinus, this Species is frequently incurable, and destroys the Patient. *Drake*, therefore, has given us a true Description of the Disorder, and a proper Method of treating it. He orders one of the Dentes Molares, on the affected Side, next to the Sinus, to be drawn; and then to break through the Socket into the Sinus, with a Probe, or some other pointed Instrument (*Tab.* XXVIII. *Fig.* 2.): This, he says, may be done without any Difficulty, as the Bone is eroded, or, at least, decayed by the corrupted Matter. Thus the Matter will not only discharge itself spontaneously through this Passage, but the Sinus may be cleaned by proper Injections, and not only cleansed, but healed likewise, by frequent Applications of balsamic Medicines; such as the Elixir Proprietatis, and the Tincture of Myrrh and Aloes, either alone, or mixed with Honey of Roses, or the Decoctions of Scordium or Savin. When the Medicine is injected, it must be retained there by a Tent introduc'd into the Aperture: Upon discharging the Injection, another Tent, fastened to a Thread, must be introduc'd, to prevent the Passage from closing, before the Ulcer is cleansed. The Excellency of this Practice is confirmed by Experience; and it is observable, that the Jaw-bone is sometimes so much eroded, that it comes away with the Tooth; so that an Aperture to the Sinus is formed without any Instrument, and nothing more is required, than to apply Purgatives and Balsamics, till the Parts are conglutinated.

#### OF ARTIFICIAL NOSES.

The Method of curing Noses violently wounded, either with Instruments or Bites, so that some Part of them still adheres to the Face, is already specified under the Article *CAPUT*. But, with respect to the Method of cutting a Nose from some fleshy Part of the Body, and with that supplying the Defect of an entire Nose, we have yet said nothing; for though *Valicottius* has written professedly on this Subject, in a Treatise intitled *Chirurgia curatorum per Infitionem*, and illustrated it with many Figures; yet our modern Surgeons, since what he proposed has not been confirmed by later Experiments, think it impracticable. When the Nose, therefore, is entirely lost, we supply the Defect by an artificial Nose of Wood or Silver, (unless the real Nose can be replaced by Suture or Plaisters) which may be painted of the natural Colour, and furnished with proper Springs and Screws, so as to unite it with the remaining Part of the Nose. *Roonbuisen*, in his *Observ. Chirurg.* 24. mentions a Nose slit longitudinally, and cured by Suture.

#### OF OPENING THE NOSTRILS PRETERNATURALLY CLOSED.

I have never yet, in any surgical Writings, met with an Instance of a Nose preternaturally concreted, and cured by a Surgeon; but Experience assures me, that such Accidents happen, and are curable. A poor Infant, of about three Years old, was brought to me, who, for want of Care in the Smallpox, had been violently ulcerated all over his Face, especially his Nose and Lips, so that his Nostrils were closed, his upper Lip reflected back, and united to them, as in *Tab.* XI. *Fig.* 14. *Litt.* A A. The Right Nostril was entirely stopt, and the Left so far contracted, as to deny Admission to the Head of a small Pin: Whence he was frequently troubled with so difficult a Respiration in Sleep, that his Parents were in perpetual Fear of Suffocation.

I treated him in the following Manner: I placed his Head opposite to the Light, and ordered some Assistants to secure his Hands and Legs; then separated the upper Lip from the Nose with a Knife; after this, with a smaller Knife, I opened both Nostrils to their natural Size; then introduced a Probe (*Tab.* XXII.

*Litt.*



*Letz. K.*) to examine the Openings of the superior Part; and, finding one not sufficiently divided, I enlarged the Aperture. After permitting them to bleed a little, I introduc'd a thick Linen Tent into each Nostril, both to suppress the Hæmorrhage, and prevent the Uniting of the Aperture. To replace the upper Lip, I applied some Lint, with a Plaister, and an oblong narrow Compress, under the Nose, to keep down the Lip; then bound it with the four-headed Bandage, as for an Hare-lip. This I continued for several Days; only afterwards the Tents were dipt in Spirits of Wine. Thus, for eight Days, the Apertures of the Nose remained sufficiently large and open.

But the Mother, imagining the Child to be perfectly cured, removed the Tents, and neglected bringing him to me. The Consequence was, his Nostrils were again concreted, and, after some time, would hardly admit a small Probe. Upon her Return I opened them, as before; and, after the Use of Tents for eight Days, kept them open, by inserting marginated leaden Pipes (*Tab. XL. Fig. 15. and 16.*) till they were of a proper Dimension, and the Wound was healed.

I performed another Cure of this Kind upon a Girl; and, as her Disorder proceeded from the Small-pox, I treated her in the same Manner. Since that I have met with a third, when, instead of leaden Pipes, which are easily compressed, and changed from their elliptic Form, I used some made of Brass. It is necessary to observe, that the Nostrils ought to be kept open for a considerable time, otherwise they will soon contract, though they appear to be very large. *Heister Chirurg.*

**NARIFUSORIA.** Medicines which are instil'd in the Nostrils.

**NARTHEX**, νάρθηξ. The **FERULA**; which see.

**NARWAL.** A Name for the Unicorn Fish. See **UNICORNU**.

**NASA.** The same as **NATA**.

**NASALE.** An Errhine.

**NASCALE.** A Sort of Pessary, made of Wool, or Cotton, like a Pledget, to be introduced into the Vagina, when impregnated with proper Oil, Unguents, or Juices.

**NASCAPHTHON.** See **NARCAPHTHON**.

**NASITAS.** A Speaking thro' the Nose.

**NASTURTIIUM.**

The Characters are;

It resembles, in all respects, the *Thlaspi*, or Mithridate Mustard, with a less foliaceous Margin, and multifid Leaves, to distinguish it.

*Boerhaave* mentions eleven Species of this Plant; which are,

1. *Nasturtium*; sylvestre; Dalechampii. *Lugd.* 655. *Thlaspi umbellatum*, *Nasturtii folio*, *Monspeliacum*. C. B. P. 106.

2. *Nasturtium*; hortense; vulgatum. C. B. P. 103. *Tourn. Inst.* 213. *Boerb. Ind. A.* 2. 8. *Nasturtium hortense*. *Offic. Ger.* 194. *Emac.* 250. *Park. Parad.* 500. *Raii Hist.* 1. 825. *Nasturtium vulgare*. J. B. 2. 912. **GARDEN-CRESSSES.**

This Cress has a small white stringy Root, from which spring many finely lacinated winged Leaves, three or four Inches long, of a pleasant, hot, biting Taste; the Stalks about a Foot high, smooth, and round; the Leaves which grow on them are less cut in, and have larger and broader Lacinae. The Flowers are small, of four white Leaves, set together in Tufts on the Top of the Stalk, and are succeeded by little round Seed-vessels, flat on one Side, containing red, round Seed. It is sown every Year in Gardens, and flowers in May. The Leaves and Seed are used.

The Leaves are much used in the Spring as a Salad-herb, their warming Quality being useful to correct the Coldness of others mixed with them; they are good for the Scurvy and Dropsy, as also for the Palsy and Lethargy. A Cataplasm of the Leaves, with Hogs-lard, cures Scald-heads. The Seed, likewise, helps the Scurvy and Dropsy, and Swelling of the Spleen, and opens Obstructions in the Female Sex. *Miller's Bot. Off.*

The Herb, but especially the Seeds, are hot and acrimonious; whence they are attenuating, absterive, and aperitive. They are of principal Service in Tumors of the Spleen, Obstructions of the Menfes, and expelling the dead Fœtus; they cut the tartarous Mucilage of the Lungs, and are good for the Scurvy; the Seed is commonly used to expel the Measles. Externally it is used in Apophlegmatisms, Errhines, and Phœnigms [a kind of drawing Plaisters, exciting a Redness of the Skin, whence they have their Name; for *φαινός*, *Phœnicus*, signifies red]. Bruised, or parched, and mixed with the Fat of an Hog, it cures the Scurf, and scabby Sores of the Head, and other Parts, being anointed therewith. *Schrader.*

It is of general Use in Seasonings and Sauces, and is commonly eaten in Spring and Summer, with Lettuce and other Herbs, season'd with Oil, Salt, and Vinegar; it tempers the Coldness of Lettuce, warms the Stomach with its Heat, and promotes Concoction. The Dutch frequently eat Cresses, with Bread and Butter, in May; they find it good for that

troublesome Disorder the Scurvy; nor is it less effectual in that Disease, than *Cochlearia*, (Scurvy-grass) or *Nasturtium aquaticum* (Water-cresses.) In comatous or lethargic Affections nothing has been found more effectual than *Nasturtium*, either boiled; or in Sallads, as *Forestus* observes, *Observ. Med. Lib.* 10. *Obs.* 39. *S. Paulus* observes from *Paræus*, that nothing is so present and effectual a Remedy for the foul and crusty Scabs and Sores of Children, as Garden-cresses, bruised or fried in Hog's Fat; for in four and twenty Hours they make the Crusts fall off; and, if the Use of them be continued for any considerable time, make a perfect Cure, as he found by Experience. *Raii H. P.* p. 825.

3. *Nasturtium*; hortense; crispum. C. B. P. 104.

4. *Nasturtium*; hortense; latifolium. C. B. P. 104. *Prod.* 43.

5. *Nasturtium*; sylvestre; folio *Osyridis*. C. B. P. 105. *Thlaspi angustifolium*, *Fuchsi*, *Nasturtium sylvestre*. J. B. 2. 914.

6. *Nasturtium*; sylvestre; capsulis cristatis. See **AMBROSIA CAMPESTRIS**.

7. *Nasturtium*; sylvestre; tenuissimè incisum; fructu minore. T. 214. *Iberis*, *Nasturtii folio*. C. B. P. 97.

8. *Nasturtium*; pumilum; vernum. C. B. P. 105. *M. H.* 2. 301. *Cardamine*, *pumilla*, *saxatilis*, *montana*, *σισυμβριον*. *Col.* 1. 273.

9. *Nasturtium*; sylvestre. *Clus. Hist.* 423.

10. *Nasturtium*; pumilum; incanum; foliis tantum circa radicem. *Bot. Monsp.*

11. *Nasturtium*; pumilum; vernum; supinum. *Bot. Monsp. Boerb. Ind. alt. Plant.*

It is called *Nasturtium*, quasi *Nasi Tormentum*, the Torment of the Nose, because it has such an Acrimony, that the Smell of the Seed bruised provokes Sneezing.

It has an antiscorbutic, oleous, and saline Quality: With this Plant have I cured a radicated Dropsy, proceeding from a cold Cause; but, in this Case, the Viscera were not affected. An Ounce of the expressed Juice, together with a dry Diet, are very proper in this Disease; in the Winter Season I use the Seeds. This Herb liquefies the Blood, and renders it acrimonious; whence it is proper, where there is a Coldness and Viscidity; but in hot Distempers it is Poison. It quite eradicates pituitous Diseases, is a good Pectoral for old Persons, where Phlegm hinders Respiration, and is good in hysteric, hypochondriac, and scorbutic Cases. The Leaves newly bruised, and mixed with Ferment, heat, and excite a Redness of the Skin, and even a Blister, if their Application be continued for a considerable time, where it meets with a sweet viscid Phlegm, and none but cold Humours, with an extreme Laxness of the Acid, in all which Cases it is highly serviceable. The Seeds, by a singular Property, are effectual in Hernias, whether internally or externally used. *Hist. Plant. adscript. Boerb.*

**NASTURTIIUM** is, also, a Name for several Sorts of **SISYMBRIUM**; which see.

**NASTURTIIUM INDICUM.**

We have already taken notice of the **NASTURTIIUM INDICUM** under the Article **ACRIVIOLE**.

The *Acriviole*. *Boerb. Ind.* 244. *Viola Indica scandens*, *Nasturtii sapore & odore, flore flavo*. *Horn. Hort. Lugd. Bat.* 628. *Viola acris Americana sive Acriviole folio peltato minor & vulgaris*. *Pluk. Almag.* 388. *Cardaminum minus & vulgare*. *Tourn. Inst.* 430. *Pelon Mexicquiliti seu Pelon Chili, sive Nasturtium Peruvianum*. *Hern.* 161. **INDIAN CRESS**, is a Native of Peru, but frequently cultivated with us in Gardens, and flowers during the whole Summer. The Flower is serviceable in a Weakness, or Pain, of the Stomach, proceeding from Cold and Flatulences; it is an Ingredient in Sallads, and mixed with other Greens. *Dale.* A Person worthy of Credit, and just returned from America, communicated to me, as an extraordinary Secret, a Remedy against a stubborn and malignant Itch, and for recent Wounds; which was an excellent Oil, prepared of *Nasturtium Indicum*, by simple Infusion. *Raii H. P.* p. 487.

The *Acriviole maxima odorata*. *Boerb. Ind. A.* 244. *Cardaminum ampliori folio & majori flore*. *Tourn. Inst.* 430. *Cardaminum majus*. *Rupp. Flor. Jen.* 230. *Viola Indica scandens*, *Nasturtii maxima odorata*. *Hern. Hort. Lugd. Bat.* 629. *Viola acris Americana sive Acriviole folio peltato maxima, flore odorato eleganti*. *Pluk. Almag.* 388. **THE GREAT, or SWEET INDIAN CRESS.**

It is cultivated with us in Gardens, and flowers in Summer; the Virtues and Uses are the same as those of the former, or common *Nasturtium Indicum*.

*Nasturtium Orientale.* A Name for the *Thlaspi*; *spicatum*; *Perseum*; *perfoliatum*, *marinum*; *foliis inferioribus tenuiter incisis*; *superioribus a caule Perfoliatæ modo penetratis*.

*Nasturtium pratense.* See **CARDAMINE**.

*Nasturtium,*



*Nasturtium, sylvestre, Eruca affinis.* A Name for the *Sinapi*; *Hispanicum*; *folio Glauco violaceo*.

NASUS. The Nose.

The Parts of which the Nose consist, may be divided two different Ways; from their Situation, into internal and external Parts; and, from their Structure, into hard and soft Parts.

The external Parts are the Root of the Nose, the Arch, the Back, or Spine of the Nose, the Sides of the Nose, or of the Arch, the Tip of the Nose, the Alæ; the external Nares, and the Part under the Septum.

The internal Parts are the internal Nares, the Septum Narium, the Circumvolutions, the Conchæ superiores, the Conchæ inferiores, the posterior Openings of the internal Nares, the Sinus Frontales, Sinus Maxillares, Sinus Sphenoidales, the Ductus Lachrymales, and Ductus Palatini.

The firm or hard Parts are mostly bony, and the rest cartilaginous, as the Os Frontis, Os Ethmoides, Os Sphenoides, Ossa Maxillaria, Ossa Nasi, Ossa Unguis, Ossa Palati, Vomer, Conchæ Inferiores, and the Cartilages. To these we may add the Periosteum and Perichondrium, as Parts belonging to the Bones and Cartilages.

The soft Parts are the Integuments, Muscles, Sacculus Lachrymalis, Membrana Pituitaria, Vessels, Nerves, and Hairs of the Nares. The bony Parts have been all explained under the Article CAPUT; therefore I need only set down here their Distribution and Disposition, for the Formation of some of the principal Parts. The Septum is formed by the descending Laminae of the Os Ethmoides, and by the Vomer; and it is placed in the Groove framed by the Cristæ of the Ossa Maxillaria, and rising Edges of the Ossa Palati. The Back of the Nose is formed by the Ossa Nasi, and the Sides by the superior Apophyses of the Ossa Maxillaria.

The internal Nares, or the two Cavities of the Nose, comprehend the whole Space between the external Nares, and posterior Openings, immediately above the Arch of the Palate, from whence these Cavities reach upward as far as the Lamina Cribrosa of the Os Ethmoides; where they communicate forward with the Sinus Frontales, and backward with the Sinus Sphenoidales. Laterally these Cavities are bounded on the Inside by the Septum Narium; and on the Outside, or that next the Cheeks, by the Conchæ, between which they communicate with the Sinus Maxillaris.

The particular Situation of these Cavities deserves our Attention. The Bottom of them runs directly backward, so that a straight and pretty large Stilet may easily be passed from the external Nares, under the great Apophysis of the Occipital Bone. The Openings of the Maxillary Sinuses are nearly opposite to the upper Edge of the Ossa Malarum; the Opening of the Frontal Sinuses are more or less opposite to, and between the Pulleys or Rings of the Musculi Trochleares; and by these Marks the Situation of all the other Parts may be determined.

The inferior Portion of the external Nose is composed of several Cartilages, which are commonly five in Number, and of a pretty regular Figure. The rest are only additional, smaller, more irregular, and the Number of them more uncertain. Of the five ordinary Cartilages, one is situated in the Middle; the other four laterally. The middle Cartilage is the most considerable, and supports the rest, being connected immediately to the bony Parts; but the other four are connected to the middle Cartilage, and to each other, by means of Ligaments.

The principal Cartilage of the Nose consists of three Parts, one middle, and two lateral. The middle Portion is a broad cartilaginous Lamina, joined by a kind of Symphysis to the anterior Edge of the middle Lamina of the Os Ethmoides, to the anterior Edge of the Vomer, and to the anterior Part of the Groove formed by the Ossa Maxillaria, as far as the Nasal Spines of these Bones. This Lamina completes the Septum Narium, and indeed forms the principal Part of it.

The lateral Portions are oblique and narrow, suited to the corresponding Parts of the bony Arch. Where they join the middle Lamina, a superficial Groove is observable, which makes them sometimes appear like two distinct Pieces, separated from the Lamina, tho' they are really continuous. This shallow Groove terminates below by a small Crista.

The lateral Cartilages are two, on each Side of the inferior Part of the Lamina, one anterior, the other posterior. The two anterior Cartilages are very much bent forward, and form what is called *The Tip of the Nose*; the Space between their incurvated Extremities being commonly filled with a kind of fatty Substance. The two posterior Cartilages form the Alæ of the Nares, being pretty broad, and of an irregular Figure.

The Spaces left between some Portions of the anterior and posterior Cartilages, those between the posterior Cartilages, and the neighbouring Parts of the Ossa Maxillaria, and, lastly, those between these four lateral Cartilages and the prin-

cipal Lamina, vary in different Subjects, and are filled by small additional Cartilages, the Number, Size and Figure of which, are as variable as the Interstices in which they lie.

The *Subseptum*, or Portion under the *Septum Narium*, is a Pillar of Fat, applied to the inferior Edge of the cartilaginous Partition, in form of a soft moveable Appendix. The Thickness of the *Alæ Narium*, and especially that of the lower Edges, is not to be ascribed to the Cartilages, which are very thin, but to the same Kind of solid Fat, with which these Cartilages are covered. The great Cartilage is immoveable by reason of its firm Connection to the bony Parts of the Nose; but the lateral Cartilages are moveable, because of their ligamentary Connections; and they are moved in different Manners by the Muscles belonging to them.

The external Nose is cover'd by the common Integuments, the Skin, Epidermis, and Fat. These which cover the Tip of the Nose, and Alæ Narium, are a great Number of glandular Bodies, called *Glandulae Sebaceae* by *Morgagni*, the Contents of which may easily be squeezed out by the Fingers. All these bony and cartilaginous Parts have likewise the common *Periosteum*, or *Perichondrium*.

Six Muscles are commonly reckon'd to belong to the Nose; two *Recti*, called, also, *Pyramidales*, or *Triangulares*; two *Obliqui*, or *Laterales*; and two *Transversi*, or *Myrtiformes*. In very muscular Bodies there are likewise some supernumerary Muscles, or small *Accessorii*. The Nose may, also, be moved in some measure by the Muscles of the Lips, which, in many Cases, become Assistants to the proper Muscles of this Organ.

The *Musculus Pyramidalis*, or Anterior on each Side, is inserted by one Extremity in the *Synarthrosis* of the Os Frontis, and Ossa Nasi, where its fleshy Fibres mix with those of the *Musculi Frontales*, and *Superciliares*. It is very flat, and runs down on the Side of the Nose, increasing gradually in Breadth, and terminating by an Aponeurosis, which represents the Basis of a Pyramid, and is inserted in the moveable Cartilage, which forms the Ala of the Nares.

The oblique or lateral Muscle is a thin fleshy Plain, lying on the Side of the former, and in some Subjects appearing to form one broad Muscle with it. This is probably the Reason why the anterior Muscle has been termed *Triangularis*. The lateral Muscle is fixed by its upper Extremity to the *Apophysis Nasalis* of the Os Maxillare, below its Articulation with the Os Frontis, and sometimes a little lower than the Middle of the inner Edge of the Orbit. From thence it runs toward the Ala Narium, and is inserted in the moveable Cartilage, near the Os Maxillare, being covered laterally by a Portion of the neighbouring Muscle of the upper Lip, with which, in some Subjects, it appears to be confounded.

The transverse or inferior Muscle, called, also, *Myrtiformis*, is inserted by one End in the Os Maxillare, near the lower Edge of the Orbit, much about the Place which answers to the Extremity of the Socket of the *Dens Caninus* on the same Side. Thence it runs almost transversely upward, and is fixed in the lateral Cartilages of the Nose, over which, in some Subjects, it seems to run to the Alæ of the great Cartilage, and to be inserted there.

The first two Pairs of these Muscles raise and dilate the Alæ of the Nares, when they act; and at the same time raise the upper Lip, by reason of their Connection with the Muscles of that Part. They likewise wrinkle the Skin on the Sides of the Nose.

The *Membrana Pituitaria* is that which lines the whole internal Nares, the Cellular Convolutions, the Conchæ, the Sides of the Septum Narium, and, by an uninterrupted Continuation, the inner Surface of the Sinus Frontales and Maxillares, and of the Ductus Lachrymales, Palatini, and Sphenoidales. It is likewise continued down from the Nares to the Pharynx, Septum Palati, &c.

It is termed *Pituitaria*, because, through the greatest Part of its large Extent, it serves to separate from the arterial Blood a mucilaginous Lymph, called *Pituita* by the Antients; which in the natural State is pretty liquid; but it is subject to very great Changes, becoming sometimes glutinous, or snotty, and sometimes limpid; neither is it separated in equal Quantities thro' the whole Membrane.

When we carefully examine this Membrane, it appears to be of a different Structure in different Parts. Near the Edge of the external Nares it is very thin, appearing to be the Skin and Epidermis in a degenerated State. All the other Parts of it, in general, are spongy, and of different Thicknesses. The thickest Parts are those on the Septum Narium, on the whole lower Portion of the internal Nares, and on the Conchæ; and, if we make a small Hole in it at any of these Places, and then blow through a Pipe, we discover a very large cellular Substance. In the Sinuses it appears to be of a more slender Texture.

On the Side next the Periosteum and Perichondrium it is plentifully stored with small Glands, the excretory Ducts of which



which are very long near the Septum Narium, and their Orifices very visible; and, by applying a Pipe to any of those Orifices, the Ducts may be blown up almost through their whole Extent; but, in order to this, the Parts must first be very well cleaned, and washed in luke-warm Water.

In these Places especially, we likewise discover a very fine villous Substance, when the Parts are examin'd in clear Water. *Riolanus* made use of this Method in examining small Fœtuses.

The frontal, maxillary, and sphenoidal Sinuses open into the internal Nares, but in different Manners. The frontal Sinuses open from above downward, answering to the Infundibula of the Os Ethmoides, described under the Article CAPUT. The Sphenoidales open forwards, opposite to the posterior Orifices of the Nares; and the Maxillares open a little higher, between the two Conchæ. Therefore the Sinus Frontales discharge themselves most readily when we stand or sit; and the Sphenoidales when the Head is inclined forward.

The Sinus Maxillares cannot be emptied wholly, or both at the same time, in any one Situation. Their Opening, which in some Subjects is single, in others double, lies exactly between the two Conchæ, about the middle of their Depth; so that when the Head is held strait, or inclined forward or backward, they can only be half emptied; but, when we lie on one Side, the Sinus of the opposite Side may be wholly emptied, the other remaining full.

It is proper to observe here the whole Extent of the maxillary Sinus. Below, there is but a very thin Partition between it and the Dentes Molares, the Roots of which, in some Subjects, perforate that Septum. Above, there is only a very thin, transparent Lamina, between the Orbit and the Sinus. Backward, above the Tuberosity of the Os Maxillare, the Sides of the Sinus are very thin, especially at the Place which lies before the Root of the Apophysis Pterygoides; through which the inferior maxillary Nerve sends down a Ramus to the Foramen Palatinum Posterius, commonly called *Gustatorium*. Inward, or toward the Conchæ Narium, the bony Part of the Sinus is also very thin.

The lachrymal Sacculus is an oblong membranous Bag, into which the serous Fluid is discharged from the Eye, through the Puncta Lachrymalia, and from which the same Fluid passes to the lower Part of the internal Nares. It is situated in a bony Groove and Canal; formed partly by the Apophysis Nasalis of the Os Maxillare and Os Unguis, partly by the same Os Maxillare and lower Part of the Os Unguis, and partly by this lower Portion of the Os Unguis, and a small superior Portion of the Concha Narium interior. This Groove and Canal are the bony lachrymal Duct, of which see what is said under the Article CAPUT.

I have an Observation or two to add concerning the Situation of this bony Duct. It runs down a little Way obliquely backward, toward the lower and lateral Part of the internal Nares on each Side, where its lower Extremity opens on one Side of the Sinus Maxillares, under the inferior Concha, nearly at the Place from which a perpendicular Line would fall in the Interstice between the second and third Dentes Molares. The upper Part of this Duct is only an Half-canal or Groove; the lower is a complete Canal, narrower than the former.

The Sacculus Lachrymalis may be divided into a superior or orbitary Portion, and an inferior or nasal Portion. The orbitary Portion fills the whole bony Groove, being situated immediately behind the middle Tendon of the Musculus Orbicularis. About One-fourth of its Length is above this Tendon, and the rest below. The nasal Portion lies in the bony Canal of the Nose, being narrower and shorter than the former.

The orbitary Portion is disposed at its upper Extremity, much in the manner of an Intestinum Cæcum; and, at the lower Extremity, is continued with the Portio nasalis. Towards the internal Angle of the Eye, behind the Tendon of the orbicular Muscle, it is perforated by a small short Canal, formed by the Union of the lachrymal Ducts.

The nasal Portion, having reached the lower Part of the bony Duct, under the inferior Concha, terminates in a small, flat, membranous Bag, the Bottom of which is perforated by a round Opening, as I have always found it upon a careful Examination, but which, at first Sight, appears oblong.

I used to attribute this Difference to the Force, which I was obliged to use in separating the Concha inferior, in order to see this Opening, which I have often found more backward than the Middle of the Bag, at the Extremity of this Portion; and, therefore, when I would either see or shew this Opening in its natural State, I do not separate the inferior Concha, but cut it gently with a sharp Knife, or with Scissars. If a transverse Line be drawn between the lower Part of the Nose, and Os Mala; and another Line be drawn directly upward, opposite to the third Dens Molaris, or opposite to the second and third, these two Lines will intersect each other nearly, at the lower Extremity of this Sacculus.

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I have sometimes found the upper Extremity of this Bag divided into an anterior and posterior Part, by a kind of Valvula connivens lying in the anterior Portion, a little lower than the Tendon of the Musculus orbicularis. The small common Canal of the two lachrymal Ducts opens in the posterior Portion, and consequently behind the Valve.

The Substance of this Sacculus is something spongy or cellulous, and pretty thick, being strongly united, by its convex Side, to the Periosteum of the bony Canal, which may be very distinctly shewn. This Substance seems to be made up of two Laminæ, joined together by a spongy Membrane, the outermost of which is that which I have mentioned; the other appears to be glandulous, and is, in some Subjects, loose and pliable, which I look upon as a Disease.

The Ductus Incisorii or Naso-palatini, of *Steno*, are two Canals, which go from the Bottom of the internal Nares cross the Arch of the Palate, and open behind the first or largest Dentes Incisorii. Their two Orifices may be distinctly seen in the Skeleton, at the lower Part of the nasal Fossæ, on the anterior and lateral Sides of the Cristæ maxillares; and we may likewise perceive their oblique Passage through the maxillary Bones; and, lastly, their inferior Orifices, in a small Cavity, or Fossula; called *Foramen Palatinum anterius*. In fresh Subjects they are not so apparent, especially in human Subjects; for in Sheep and Oxen they are easily discoverable.

*Santorini*, in his anatomical Observations, has described those in the human Body in a very pretty Manner; and has given us his Method of discovering them, which is nearly the same with mine. Instead of dividing the Head into two equal lateral Parts, I always direct the Saw a little towards one Side, to preserve the Septum Narium entire, as well as that of the Sinus Frontales, Sinus Sphenoidales, and Ductus Incisorii; and, on the other Side, to preserve the Conchæ, and Cells of the Os Ethmoides. For this Purpose I use a fine Saw, made of the Spring of a Watch.

By this Method I shew, on that Side from which all the Septa have been saw'd off, the intire Conchæ, their convex Sides, the particular Thickness of the Membrana Pituitaria on their lower Edges, the Orifice or Orifices of the Sinus Maxillaris, the Situation of the Orifice of the Sinus Sphenoidales, the communicating Ducts that go between the Sinus Frontales and the Ethmoidal Cells and Interstices between the two Conchæ, and the Structure of the posterior Openings of the Nares. I can, also, shew, at the same time, the Orifice of the Eustachian Tube, behind the posterior Opening of the Nares, and the Communication of the Nose with the Mouth.

On the same Side I afterwards separate gradually, with a very sharp Knife, or with narrow sharp-pointed Scissars, the Superior or Ethmoidal Concha, without doing any Violence to the neighbouring Parts; and then I can shew, on the Parts covered by that Concha, a little oblong or oval Fossula, which runs down obliquely from before backward; at the posterior and lower Extremity of which, there is an Orifice of about a Quarter of an Inch Diameter, which opens into the Maxillary Sinus; and another at the anterior or superior Extremity, which opens into the Frontal Sinus.

Immediately behind this Fossula there are two Openings, one into the Sinus Frontales, the other into the Ethmoidal Cellule of the Os Frontis. I shew, likewise, in the posterior Part of the Os Ethmoides, at least two Openings, by which the Cells of that Bone communicate with each other. All this is very different from what we see in the Skeleton, or even when these Parts are deprived of their Membranes; neither is the Structure always the same in fresh Subjects; for in some I have observed, a little before and above the Opening of the Maxillary Sinus, two small Grooves, which united in their Passage to the Frontal Sinuses, the uppermost Groove being a little contorted.

In the next Place I remove the Concha Inferior, or Maxillaris, in the same Manner, and with the same Precautions; and then I observe, at the Distance of about a Quarter of an Inch from the anterior Extremity of this Concha, a small Opening, the Diameter of which is not above the twelfth Part of an Inch, and it is turned obliquely backward. It seems to be the Extremity of a Duct of the same Diameter; but, when it is slit with sharp-pointed Scissars, we discover a flat oval Cavity, the Diameter of which is a Quarter of an Inch in Length, and lies in the same Direction with the Septum Narium.

This oval Cavity is the lower Extremity of the Sacculus Lachrymalis, which, consequently, is only contracted between this interior Cavity and the orbitary Portion. Within this narrow or contracted Portion we see, likewise, the Opening of a blind Duct, which runs obliquely backward and upward, about a Quarter of an Inch; but I do not know precisely where it terminates, nor for what it is designed.

The Arteries of all these Parts come from the external Carotid. Those of the external Parts of the Nose are, in general, Branches

[D \*]



Branches and Ramifications of the Arteria Maxillaris externa, or Angularis, and of the Temporalis; and the Arteries of the internal Parts are Branches and Ramifications of the Maxillaris Interna. The Veins are, almost in the same manner, Branches and Ramifications of the external Jugular; and they communicate with the orbitary Sinus, and, by that means, with the Sinuses of the Dura Mater, and with the internal Jugulars.

The principal Nerves belonging to the Nose are Filaments of the Nervi Olfactorii, which run down through the Holes of the transverse Lamina of the Os Ethmoides, and are distributed to the common Membrane of the internal Nares, especially to the villous Portions thereof. The inner Branch of the orbitary or ophthalmic Nerve sends a Filament through the internal anterior orbitary Hole into the Cranium, which comes out again in Company with one of the Filaments of the olfactory Nerve through the Ethmoidal Lamina.

This internal Branch advances afterwards toward the Os Unguis, and is distributed partly to the Sacculus Lachrymalis, partly to the upper Portion of the Musculus Pyramidalis, and of the Integuments of the Nose. The suborbitary Nerve, which is a Branch of the Maxillaris superior, having passed through the Inferior orbitary Hole, sends Filaments to the lateral external Parts of the Nose. Another Branch of the superior Maxillary Nerve goes to the posterior Opening of the Nares, being spent on the Conchæ, and other internal Parts of the Nose.

The Nose is the Organ of Smelling, by means of the villous Portion of the internal Membranes, to which the olfactory Nerves are principally distributed. It is likewise of Use in Respiration; and the mucilaginous Fluid, spread over the whole pituitary Membrane, prevents the Air from drying that Membrane, and so rendering it incapable of being affected. The Nose serves, likewise, to regulate and modify the Voice; and to this the Sinuses, also, contribute. The Sacculus Lachrymalis receives the Serum from the Eyes, and discharges it upon the Palate, whence the greatest Part of it runs to the Pharynx. *Winflow, Sect. 10. N<sup>o</sup> 315.*

NATA, NATTA, NASA, NASDA, or NAPTA. All these import a Species of Tumor, or Wen, which grows on many Parts of the Body, arising from a narrow Base, and spreading like a Fig.

NATARON. The same as NATRON.

NATATIO. There are a few chronical Disorders, in which Swimming is proper; for which Reason it is rarely prescribed. It is only used in the Summer, and renders Persons leaner, promotes Perspiration, heats, attenuates, and renders those who use it less obnoxious to Injuries. Swimming in the Sea is beneficial to those who labour under Dropsies, Itches, exanthematous Disorders, an Elephantiasis, or Defluxions of the Legs, or any other Parts of the Body. It is, also, beneficial to those who reap no Benefit from their Aliments. Swimming, not only in the Sea, but, also, any-where else, is injurious to the Head; and Swimming in fresh Waters produces the above-mentioned Effects, in a very faint and languid Manner; for which Reason it is, for the most part, to be avoided: For, if one continues long in fresh Water, the Nerves are injured, not only by its Cold, but, also, by its Moisture. Swimming in Water naturally hot is incommensurable, because it fills the Vessels of the Body; and Swimming in Water artificially heated, is still more prejudicial: Besides, a Person ought never to swim, either in the Sea, or any other Water, till he has moderately anointed the Body, and warmed it by Friction. He, also, ought to throw himself from an Eminence into the Water. *Oribas. Lib. 6. Cap. 27.*

NATES. The Buttocks. Two Protuberances of the Brain are, also, called by this Name.

NATRIX. The Name of a Serpent. See HYDRUS.

NATRON. The Nitre of the Antients is very different from ours. Our Nitre is inflammable, and shoots into Crystals, Strias, and Spears; such a Nitre was wholly unknown to the Antients: Nor is it certain when this artificial Nitre of ours was invented. It is not to be doubted, but the Invention of it very much conduced, and gave occasion, to that of Gunpowder. The Difference between our Nitre, and that of the Antients, consists in the following Particulars.

1. The Nitre of the Antients was a native Fossile, dug out of the Earth, not pure indeed, but got by Lixivation from the Earth; ours is artificial, and owes its Generation to the Air. Hence appears the Mistake of those who affirm, that some Sorts of Beer are brew'd of nitrous Waters, which is commonly said of the Beer of *Servefs* and *Numburgh*.

2. The Nitre of the Antients was of an alkaline and abster-sive Nature, so that it might well serve instead of Pot-ashes, for the making of Glass, or Soap. It was produced in *Egypt*, and called *Natron*. And now, at present, they dig, at *Smyrna*, an Earth, that is purely alkaline, which comes to *Paris* in great Quantities, and is used instead of Pot ash. *Clusius de*

*Exotic. Lib. 2.* writes, that the Nitre of the Antients is so common at *Cairo*, that ten Pounds of it will hardly yield a Meyden (three Half-pence). They use it for several Purposes; for they incrust Vessels with it; and, mixed with the Pods of *Acacia*, it serves to dry Leather. *Bellonius, Lib. 2.* writes, that the Nitre of the Antients is very rarely found amongst us; and confidently asserts, that there is not a Grain of that Nitre in *Europe*; but that in *Egypt* there is nothing more cheap and common. Our Nitre is a savoury Salt, neither acid nor alkaline, but of a middle Kind; for it cannot be brought to an Effervescence, neither with an Acid nor Alkali.

3. The Nitre of the Antients was not combustible and inflammable, like ours, and, consequently, of no Use in making Gunpowder. This Difference being supposed, it plainly follows, that what we find in antient Writings, as those of *Hippocrates, Pliny, Dioscorides, Galen*, and others, of Nitre, and its Virtues, is not to be understood of our common Nitre, but of a native alkaline Salt.

But though *Bellonius* denies, that there is a Grain of this alkaline Salt, or Nitre of the Antients, to be found in *Europe*, I am of Opinion, that though we have not so great Quantities of nitrous alkaline Salt in the Earth of *European* Countries, as in that of *Egypt*, yet, that a purely alkaline fixed Salt may be produced from the Bowels of the Earth, with all the Properties of Pot-ashes, or Salt of Tartar, or Nitre of the Antients; which is sufficiently proved by medicinal Springs, Baths, and Waters. For a very pure alkaline Salt is extracted out of many of them; for Instance, the *Selteran* and *Antonian* Waters, and in *Bohemia* those of *Buckfouerling* and *Wildungen*, which yield a very pure Sal Alkali, as do the *Caroline* and *Emsen* Baths; as the Springs of *Schwalback* and *Egra* produce an Alkali, and with it a Salt of a middle Kind. So that I think it can no longer be doubted, but that our Earth contains a fixed alkaline Salt, which is imbibed and carried off by the Waters. This Consideration will, also, serve to confute the vulgar Notion of our modern Chymists, that fixed Sal Alkali was the mere Product of Art, and obtained by Fire; nor could be extracted otherwise than from the Vegetable Kingdom, by way of reducing Vegetables to Ashes. *Hoffman. Obs. Phys. Chym. Lib. 2. Obs. 1.*

NATTA. See NATA.

NATURALIA. The Pudenda.

NAVICULARE Os, or NAVIFORME. The Name of a Bone in the Foot, called, also, *Cymbiforme*. See CRUS.

NAVIGATIO. Sailing. This is considered as an Exercise, under the Article FIBRA; which see.

NAUSEA, *nausia*, from *naûs*, a Ship. This is properly the Sickness which People perceive upon Sailing. But it is used to express all Sorts of Sickness, and Propensities to vomit. See PYRETIOS.

NAUSIOSIS, *nausiōsis*. The same as NAUSEA.

NAUTEA, says *Nonius Marcellus*, is Water contained in Skins or Leather, or rather Water taken from the Ship's Hold, so call'd a *Nantis*, "from Seamen." But *Mercurialis* rather approves the Definition of it given by *Paulus in Festus*, who says, that *Nautea* is an Herb with black Grains, used by Leather-dressers, and taking its Name, a *Nave*, "from a Ship," because it excites a Nausea, the T being changed into an S. Again, *Labeo Com. Juris Pontific.* quoted by *Festus*, says, that *Nautea* was a red Substance, with which they dy'd some of the sacerdotal Vestments. What was the *Nautea* (supposing it an Herb, which is the general Opinion) used by the Leather-dressers, or Tanners, and qualified to excite a Nausea, does not appear; for they use nothing of that Kind, except the *Bryonia alba*, whose Fruit, as *Dioscorides* says, is used in taking off the Hair from Skins: This indeed is proper to excite Vomiting, and the *Bryonia nigra* has the very same Effects, only in a lower Degree; and this is supposed by *Hadrianus Junius* to be the *Nautea* of *Festus*. Some of the Lexicographers take the *Anagyris* to be the *Nautea*; and probably enough, if we regard only its emetic Quality. *Rhodius* thinks it most likely to be the *Pitis nigra*, or *Uva Taminia*, as *Pliny* says it is commonly called, *Lib. 23. Cap. 1.* which was, also, the Opinion, he says, of two very learned Men, *Avantius* and *Schipanus*; and is further confirm'd by what *Oribasius* says of the *Uva Taminia*, *Med. Coll. Lib. 7. Cap. 26.* that it purges by Vomit. *Rhodius, Not. ad Scrib. Largum, N<sup>o</sup> 180.*

NAUTIA. The same as NAUSEA.

NAUTICUS Musculus. A Name for the *Tibialis Posterior*.

NAUTILUS. The Name of a Shell-fish, said to be aperitive. *Lemery des Drogues.*

NAXIA COS. The Name of a sort of Whetstone, mentioned by *Galen*, in his Treatise *de Simp. Facultat.*

NEAPOLITA, *ναπολίτης*. The Name of a Topical Medicine, describ'd by *Actuarius, L. 6. C. 8. de Meth. Medendi*, where it is recommended for the Gout and Sciatica.

NEAPOLITANUM



# N E I

NEAPOLITANUM UNGUENTUM is an Ointment thus prepar'd :

Take of Lard, wash'd with the Juice of Sage, one Pound ; Quicksilver, passed through Leather, four Ounces ; Oil of Bays, Chamomile, and Worms, of each two Ounces ; Oil of Spike, one Ounce and an half ; Spirits of Wine, one Ounce ; Wax, two Ounces ; Turpentine, wash'd with the Juice of Elecampane, three Ounces ; the Powder of Groundpine and Sage, of each two Drams : Mix, and make into an Ointment.

NEAPOLITANUS MORBUS is the Venereal Disease.

NEASTRUM. An obscure Word ; coin'd by *Paracelsus*, but not very intelligible.

This, however, is his own Explication. *Neastrum* est Com-motio Elementorum et Elementatorum ; & est Agitatio facta in illis omnibus, quæ ab Elementis descendunt. Divisio fit in Locustas. Quo cadit ibi sese exeret.

Pars nonnulla in Corpore adhæret Neastro. Ignis, quædam aeris, nonnulla Aquæ, aliqua Terræ. Secundum hoc scire debet Medicus, quando vel paroxysmet, vel minus. Nam in suis Elementis cognoscuntur illæ.

Est enim Natura congenita, quæ ita in Yliado consistit. Et qua Ratione *Neastra* alia erumpunt, ac se produnt : eadem hoc quoque, nec a corporeo desistit, quamdiu Elementum ip-sius illud tenet ; & est contrarius Morbis in Elementis & in Corpore.

NEBULA. A Disorder of the Eye. See OCLUS.

NEBULGEN. A Salt generated by the Moisture of the Clouds falling upon Stones in the Fields, and indurated by the Heat of the Sun. *Rulandus*.

NECESSARIÆ RES are the Non-naturals.

NECHIASCH. An obscure Term of *Paracelsus*. It is said he means by it, saline, corrosive, and corroding Particles.

NECROCOMICA. Prodigies portending some great Event. *Rulandus*.

NECROLIUM. A Remedy capable of averting Death, and preserving Life.

NECROSIS, νεκρωσις. A Mortification.

NECTAR, νέκταρ. The Antients fabled this to be the Drink of the Gods. Hence many Sorts of Liquors have been called by this Name ; one of which was prepar'd of Must, boil'd away to one half, with an Addition of one Sextary of Honey to fix of the Must : This was directed to be stopt close up, and set in the Shade. *Dioscorides*, L. 5. C. 66. describes a Wine, which he calls νεκταρίτης οἶνος, which is only Wine impregnated with the Root of *Helenium*, which, he says, some call *Nectarion*. *Galen* mentions several Compositions, to which he gives the Epithet *Nectarium* ; as an Antidote described in his Treatise de Comp. M. S. L. Cap. 7. L. 8. an Eclegma, L. 9. C. 4. and a Collyrium, L. 4. C. 7. of the same Work.

NEDEON. An obscure Word in *Paracelsus*, which is said to import a specific or essential Property, or Virtue, of every natural Body.

NEDUM-SCHETTI. H. M. The Name of a bacciferous Shrub, which grows in the *East-Indies*, of which, boiled in Oil, an Ointment is made, said to be of Service in pruriginous Disorders.

NEDYIA, νεδύια. The Intestines, or the abdominal Viscera.

NEDYS, νεδύς. The Belly, or Abdomen, or the Stomach.

NEDYUSA, νεδύσα. An Epithet for Thirst, importing its being violent, or intense. *Hippocrates* in *Coac*.

NEFREDES. This properly signifies sucking Pigs ; but it is applied to young Children, or old People, who have no Teeth.

NEGUNDO MAS. A Name for the *Vitex* ; trifolia ; minor ; Indica ; serrata.

NEGUNDO FOEMINA. A Name for the *Vitex* ; trifolia ; minor ; Indica ; rotundifolia.

NEIÆRA, νειαιρα, or νειαιρα. The lower Part of the Belly.

NEIEM-EL-SALIB. Alpini, J. B. Bontii. *Gramen dactylon Aegyptiacum*. C. B. Park. EGYPTIAN COCKS-FOOT-GRASS. It is a slender Sort of Grass, with white, geniculated, and creeping Roots. The Branches are geniculated, and adorned with four Spikes, which represent the perfect Figures of a Cross ; whence the *Egyptians* call it *Neiem-el-Salib*, that is, *Gramen Crucis*, the Grass of the Cross, or cross-Grass.

The Seeds, which are very minute, and like those of common Grass, are very much used by all those who are afflicted with the Stone in the Kidneys, or Bladder, being esteemed a good Lithontriptic for dissolving stony Concretions in the Bladder, which is a Distemper very familiar, and, in a manner,

# N E P

endemic in *Egypt*. The Women make very great Use of the Root in Decoctions for their Children, when seized with the Small-pox, or Measles ; and, also, for themselves, when labouring under a Suppression of the Menses. Some regard a Decoction of the Seeds, moderately bruised, as a great Secret ; and a choice Remedy for promoting the exanthematous Eruptions, which we call *Peticulæ*, or *Petechiæ*, in pestilential Fevers. The whole Herb, but especially the Root, are much employ'd, also, in the Cure of Wounds and Ulcers. The Root is said to be cold and dry, and of very fine Parts, tho' the Decoction thereof is very commonly used to provoke Sweat. *Raii H. P.*

NEILION, νελιον. The Name of a *Malagma*, describ'd by *Paulus Aegineta*, Lib. 7. Cap. 18.

NELI-POULI. See BILIMBI.

NENEMIA, νινεμιν. Serenity or Calmness of the Air. *Hippocrates*.

NENUFAR, or NENUPHAR. See LEUCO-NYM-PHÆA.

NENUFARENI. Imaginary Spirits, which, according to the Adepts, inhabit the Air.

NEPA. A Crab ; or, according to *Aldrovandus*, a Scorpion.

NEPA, in Botany, is a Name for the *Genista-spartium* ; majus ; brevioribus aculeis.

NEPENTHES, νηπενθης, from νη, importing Negation, and πένθος, Mourning, is a Medicine highly celebrated by *Homer*, *Odyss. Δ. Vers. 220. & Seq.* and expounded in *Diodorus Siculus*, Lib. 1. ad Finem, ἐργῆς καὶ λύπης φάρμακον, "a Remedy for Anger and Sorrow." The Poet attributes so great Virtues to the *Nepenthes*, that whoever should take it mixed with Wine, could not be sensible of Grief for that whole Day, tho' his Father or Mother were to die, or his Brother, or dearest Friend, were to have their Throats cut before his Face. *Homer* says, that *Helena* received the *Nepenthes* in *Egypt*, from *Polydamna*, the Wife of *Thenis*. *Diodorus* illustrates this Place of the Poet, and assures us, that the Women of the *Egyptian Thebes*, called, also, *Diospolis*, had still the Use of this efficacious Remedy in his Time ; and that it was reported it could be found no-where but in Possession of the Inhabitants of *Diospolis*. *Schultz. Hist. Med.*

NEPETA. A Name for the *Cataria* ; angustifolia ; major ; and for the *Cataria* ; angustifolia major, flore cæruleo-purpurascete.

NEPETELLA. A Name for the *Cataria* ; minor ; vulgaris.

NEPHELOIDES, νεφελοειδής. An Epithet, in *Hippocrates*, for Urine, importing cloudy.

NEPHRIDION, νεφρίδιον. The Fat of the Kidneys. *Hippocrates*, Lib. 2. de Mulierum Morbis.

NEPHRITICUM LIGNUM. See BALANUS MYR-PISCA.

NEPHRITICUS, from νεφρῆς, a Kidney. Belonging to the Kidneys. It is used with respect to Disorders of these ; or to Medicines adapted to their Cure.

NEPHRITICUS LAPIS. Offic. Charlt. Foss. 33. Schrod. 329. Worm. 95. Boet. 259. De Laet. 81. Lapis Indicus Nephriticus. Aldrov. Mus. Metall. 706. Lapis Nephriticus. Calc. Mus. 333. Mont. Exot. 14. THE NEPHRITIC STONE. *Dale*.

It is a Stone very much variegated with green and other Colours, as white, yellow, blue, and black, but still with a greenish Cast : It is imported from *America*, but is, also, found in some Parts of *Spain* and *Bohemia*.

It is worn as an Amulet against Pains in the Stomach and Kidneys.

NEPHRITIS. An Inflammation of the Kidneys.

That the Kidneys labour under a true Inflammation, may be known from the burning, pungent, intense, and inflammatory Pain of the Part, where the Kidneys are situated ; from the acute continual Fever, with which such an Inflammation is accompanied ; from the small Quantity of Urine, which is highly red and deep-colour'd, or, in the Height of the Disorder, aqueous ; the Stupor of the adjacent Leg ; the Pain of the Groin and contiguous Testicle ; the Pain of the Ilium ; the Vomiting of Bile, and the continual Eructations.

Such an Inflammation may be produced by all the general Causes of an Inflammation applied to the Kidneys, such as, first, whatever hinders the Extremities of the Arteries from transmitting their Fluids, a Wound, for Instance, a Contusion, an Abscess, a Tumor, a long-continued Defluxion ; a strong Effort of the Body, or a small Stone. Secondly, whatever hinders the Conveyance of the Urine into the Pelvis, Ureters, and Bladder, such as Causes similar to those already enumerated, applied to these Parts. Thirdly, such Causes as forcibly convey the thicker Parts of the Blood into the urinary Ducts ; Running,



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Running, for Instance; long and violent Riding, excessive Heat, an Effort of the Body, a Plethora, acrid Diuretics, and Poisons. And, fourthly, a long-continued spasmodic Contraction of all those Vessels.

When these Vessels are seized with a violent Inflammation, they are often so constricted, that no Urine can be discharged; or, if a small Quantity is evacuated, it is pellucid, thin, and aqueous, which is a very bad Sign; and the Nerves cohering to these Vessels, and lying contiguous to them, being often irritated, Pains and Convulsions are produced in the Stomach, Mesentery, Intestines, and Uterus. Hence arise Eructations, Nauseas, Vomiting, Fluxes, Iliac Passions, Retentions of the Urine, Stupor and Immobility of the Legs, and a preternatural Heat of the Loins.

Such an Inflammation is cur'd when Nature is benign, and the Disease favourable. First, by Resolution. Secondly, by a copious, red, and thick Urine, continually discharged before the seventh, or, at most, the fourteenth Day of the Disease. And, thirdly, by a copious Discharge from the hæmorrhoidal Veins, in the Beginning of the Disorder.

The Disorder, when the Inflammation is known to be present, by its peculiar Signs before enumerated, is to be cured, first, by the general Remedies appropriated to the Cure of all Inflammations; such as Venesection, Revulsion, and Dilution. Secondly, by mild, emollient, and antiphlogistic Decoctions, drank in large Quantities. Thus:

Take of the recent Leaves of Chervil, Brook-lime, and Pellitory of the Wall, each two Handfuls; of the Roots of Wood-sorrel, Succory, and Burdock, each two Ounces; of red Chiches, an Ounce and an half; of the bruised Seeds of white Poppy, and Ladies-thistle, each four Drams. Boil in three Pints of Water for half an Hour, and let the Patient take two Ounces of the Decoction every Quarter of an Hour.

Or,

Take of the Roots of Grass, six Ounces; of bruised Melon-seeds, an Ounce and an half; and of Liquorice, one Ounce. Boil in three Pints of Water, and let the Patient use the Decoction in the same Manner, and for the same Purposes, with the former.

Thirdly, this Species of the Disorder is cured by Clysters, Fomentations, and Baths, prepared of the above-mentioned Ingredients. And, fourthly, by mild and moist Aliments, by Rest, by avoiding lying too warm in Bed, and especially lying on the Back.

If the Pains and Convulsions are excessively violent, Opiates are beneficial.

The excessive Vomiting, with which this Disorder is accompanied, is to be relieved by a frequent Exhibition of tepid Water, edulcorated with Honey.

And, by this Method alone, a Nephritis, arising from a Stone impacted in the Ureters or Kidneys, may be safely cured.

The Remedies, most conducive to the Cure of this Species of a Nephritis, are Agrimony, Vervain-mallow, Ladies-mantle, Marsh-mallows, Brook-lime, the lesser Daisy, middle Censoid, Chervil, wild Carrot, Dandelion, Fennel, Liquorice, Strawberries, Grass, Rupturewort, Lettice, Harts-tongue, English Mercury, Moneywort, white Lilly, Rest-harrow, Pellitory of the Wall, Arse-smart, Scabious, Golden-rod, and Nettles, *Fernelius's* Syrup of Marsh-mallows, Syrup of Maiden-hair, Syrup of Succory with Rhubarb, Syrup of white Poppies, Syrup of wild Poppies, and Syrup of Violets, Sal Ammoniac, Sal Gemmæ, and Sea Salt.

If the Causes of the Nephritis are so strong and powerful, that the Disorder can neither be removed by Resolution, nor any other Method, but is protracted beyond the seventh Day, an Abscess is to be dreaded, the Formation of which may be known from a Remission of the Pain, which is succeeded by a Pulsation, a frequently returning Horror, a Weight and Stupor of the Part. That an Abscess is already form'd, is obvious, from the former Signs having preceded, from the Pulsation, Heat, and Tension in the Part, and from the purulent, fetid, and apparently saline and putrescent Urine. As soon as we are certain, that the Abscess is form'd, we are first to use powerfully maturing and emollient Medicines; then, when the Urine appears purulent, we must exhibit Diuretics, consisting of pure medicated Waters, Whey, and other Liquors of a like Nature, using at the same time Balsamics.

But, if this Suppuration should continue for a long time, the whole Kidney, being consumed, forms a kind of Bag, of no Use; and, in this Case, a *Tubæ Renalis* is frequently present.

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If a Scirrhus is form'd here, there arises an incurable Palsy, or Lameness of the subjacent Leg. Hence, also, are frequently produced a slow Consumption, and a Dropsy.

But if a small Quantity of the inflammatory Matter remains coagulated in the minute Follicule of the Urine, it forms a kind of Basis, or Ground-work, to which the fabulous Matter of the Urine gradually adhering forms a Stone in the Kidneys, which is by degrees augmented.

A Nephritis, also, sometimes degenerates into a Gangrene, as is obvious from the Violence of the Cause and Symptoms; the Want of Relief by Remedies; and the sudden Remission of the Pain, without any apparent Cause, accompanied with a cold Sweat, a weak and intermitting Pulse, a Hiccup, either no Discharge of Urine at all, or an Evacuation of such as is livid, black, full of Hairs, fetid, and rendered unseemly by brown or black Caruncles; and a sudden and considerable Loss of Strength. In this Case no Measures are of any Service, either for the Relief or Safety of the Patient.

From what has been said 'tis obvious, that there are almost an infinite Number of various Species of a Phrenitis; that their different Causes are as numerous; that one of these Causes is the Stone; and that, at the same time, all these different Species are to be cured almost in the same Manner. Hence we understand the Crisis of a Nephritis, and why this Disorder so often happens in Fevers. Hence, also, we are enabled to know and cure an Ischury, arising from a Fault of the Kidneys or Ureters. *Boerhaave Aphor.*

**NEPHROMETRÆ**, νεφρομήτραι. The Muscles of the Loins, call'd *Πσῶε*. *Ruffus Ephesus, de Appellat. Corp. Human. L. 1. C. 30.*

**NEPHROS**, νεφρός. A Kidney.

**NEPHROTOMIA**. See **LITHOTOMIA**.

**NEPONES**. The same as **BARONES**.

**NEPTA**. A Name for the **ASPHALTUS**. *Oribasius, in Collect. Medicinal. L. 11.*

**NERE**. The Name of a Paffil in *Paulus Ægineta, L. 7. C. 12.*

**NERITA**. A Sea Shell-fish, of which there are many Sorts, which are esteem'd a good Food to increase the seminal Juices. The Shell is said to be aperitive. *Lemery des Drogues.*

**NERIUM**.

The Characters are;

The greater and lesser Branches are divided and subdivided by threes, and the Leaves, also, grow three together. The Calyx is small, tubulous, and quinquefid; the Flower monopetalous, and, as it were, Funnel-shap'd, with a wide Margin, which is deeply cut into five wide and large Segments; at the Centre of the Division grow five Lobes, as in the *Lychnis*, *Caryophyllus*, and *Apocynum*; the Stamina are five in Number. The Ovary in the Centre of the Calyx becomes a polish'd Fruit, almost cylindrical, consisting of two Capsules, which, when ripe, part asunder, and containing downy Seeds.

*Boerhaave* mentions five Species of this Plant; which are,

1. *Nerium*; floribus rubescentibus. *C. B. P. 464. Tourn. Inst. 605. Boerh. Ind. A. 316. Nerium. Offic. Ger. 1220. Nerium five Oleander. Ger. Emac. 1046. Nerium five Rhododendron, flore rubro. J. B. 2. 140. Oleander five Laurus Rosæ. Park. Theat. 1469. OLEANDER vulgo. Herm. Cat. ROSE-BAY.*

It grows in Maritime Places, and by Rivers, as *Dioscorides* says, which is confirmed by Experience. The same Author and *Pliny* tell us, that the Flowers and Leaves are Poison to Mules, Asses, Dogs, and many other Quadrupeds; but that, on the contrary, they are alexipharmic to Man, and are good against the Bites of Serpents, being taken in Wine, and especially with an Addition of Rue; that weak Animals, as Sheep and Goats, if they drink Water in which the Leaves have been macerated, die. But *Galen*, who deserves more to be credited, says, that the *Nerion*, used outwardly, has a digestive Virtue; but, taken inwardly, is pernicious and poisonous, not only to Men, but most Brutes.

*J. Bodæus a Stapel* says, that this Shrub is called *Nerion*, from the privative Particle *νῆ*, and *ἐραμαι*, to love, as much as to say, a Plant which deserves not to be loved: Others write, that it has its Name from the Nymphs *Nereides*; others again derive it *ἀπὸ τῆς νῆς*, from not flowing, because, being drank, it suddenly deprives the Fluids of their Motion, and causes an intolerable Oppression; for there is an Intumescence of the Belly, which is succeeded by an Inflammation of the whole Body, and a total Consumption of the Humidities. It is, also, called *Rhododaphne*, from its Flower being like a Rose, and its Leaves like those of the Bay-tree; and *Rhododendron*, because sometimes it grows to the Bigness of a little Tree, and has a flower like a Rose.



It is carefully cultivated in our Gardens, for the Beauty of its Flowers, and its perpetual Verdure. *Raii Hist. Plant.* p. 1767.

2. Nerium, floribus; albis. *C. B. P.* 464. *Nerium sive Rhododendron, flore albo.* J. B. 2. 141.

This agrees in Virtues with the former.

3. Nerium, Indicum, angustifolium, floribus odoratis, simplicibus. *H. L.* 447.

4. Nerium, Indicum, latifolium, floribus plenis, odoratis, *H. L.* 447. 449.

5. Nerium, Indicum, latifolium, flore variegato, odorato, pleno. *H. A.* 1. 45. *Boerh. Ind. alt. Plant. Vol. 1. p. 316.*

It is called *Nerium*, from *νῆρος* (*neros*), humid; because it grows in humid Places. The Plant itself has a Force which is insuperable; for its Juice excites so great and violent an Inflammation, as immediately to put a Stop to Deglutition; and, if it be received into the Stomach, that Part is rendered incapable of retaining any thing, the pernicious Drug exerting its Force, and purging both upwards and downwards. *Nerium*, in Qualities, resembles the *Apocynum*. The third, fourth, and fifth Species have a very sweet Smell; but when I handled and examined them one Morning, upon an empty Stomach, in a close Chamber, I felt a Numbness coming upon me by degrees, with a Pain in the Head; which makes me believe, that something poisonous belongs to the Smell, though there is no Danger, if it be received in the open Air, as you may find upon Trial. Antidotes against its Poison are Vinegar, and all Acids. *Hist. Plant. adscript. Boerhaav.*

NERONIANA. An Epithet for Venesection, when more Veins than one are opened on the same Day.

NERVALIA Ossa. The same as ARCUALIA Ossa.

NERVI. The Nerves.

All the Nerves of the human Body come, originally, from the Cerebrum, or Cerebellum, by means of the Medulla Oblongata, or Medulla Spinalis: They go out in Bundles regularly disposed in Pairs, like so many distinct Trunks; which afterwards divided into Branches, Ramifications, and Filaments.

The Nerves of the Medulla Oblongata go out, for the most part, thro' the Basis of the Cranium, at Holes situated according to their Disposition; those of the Medulla Spinalis pass thro' the lateral Foramina of all the Vertebrae, and through the great anterior Foramina of the Os Sacrum.

We commonly reckon ten Pairs of these Fasciculi, or nervous Trunks, to the Medulla Oblongata; nine of which go out separately, through particular Holes of the Basis Cranii; and the tenth, which arises from the Extremity of that Medulla, passes through the great occipital Foramen.

The Trunks from the spinal Marrow are twenty-four Pairs, and may, in general, be termed *Nervi vertebrales*, or *Intervertebrales*: Seven of them are called *Cervical Nerves*, twelve *Dorsal* or *Costal*, being true Intercostal Nerves, and five *Lumbar*; to which must be added, five or six Pairs, that pass out through the Os Sacrum.

Before I enter upon the particular Distribution of all these Nerves, and the Course of their Branches, Ramifications, and Filaments, I think it proper to give a general Idea of them in the following Table.

The Nerves of the Medulla Oblongata are these:

First Pair; Nervi Olfactorii.

Second Pair; Nervi Optici.

Third Pair; Nervi Motores Oculorum, Oculares Communes, Musculares Communes, Oculo-musculares Communes.

Fourth Pair; Nervi Trochleares, Musculares Obliqui Superiores, vulgo Pathetici.

Fifth Pair; Nervi Innominati Trigemini. The subordinate Trunks of this Pair are, three on each Side; the Nervus Orbitarius, Maxillaris Superior, and Maxillaris Inferior.

Sixth Pair; Nervi Motores Externi, Oculares Externi, Musculares Externi, Oculo-musculares Externi.

Seventh Pair; Nervi Auditorii, which are two on each Side; one called Portio Mollis Nervi Auditorii; the other, Portio Dura, to which I give the Name of *Nervus Sympatheticus Minor*.

Eighth Pair; Par Vagum Minus, which I call *Nervi Sympathetici Medii*.

Ninth Pair; Nervi Hypoglossi, vulgo Gustatorii, vel Linguales.

Tenth Pair; Nervi Suboccipitales.

The Nerves of the Medulla Spinalis are these:

One Pair, called Nervi Accessorii of the eighth Pair, from the Medulla Oblongata.

One Pair, commonly called Nervi Intercostales, which I name *Nervi Sympathetici Majores*.

Seven Pairs of Nervi Cervicales, or Intervertebrales Colli.

Twelve Pairs of Nervi Dorsales, Costales, Intercostales Veri, or Intervertebrales Dorsi.

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Five Pairs of Nervi Lumbares, or Intervertebrales Lumborum.

Five or Six Pairs of Nervi Sacri.

Two Nervi Diaphragmatici, each formed by a Trunk of the second, third, and fourth Pairs of the cervical Nerves.

Nervi Brachiales of each Side, formed by the fifth, sixth, and seventh Pairs of Cervical Nerves, and by the first Pair of the Dorsales.

From these Nerves, Six Branches arise on each Side:

Nervus Musculo-cutaneus.

Nervus Medianus.

Nervus Cubitalis.

Nervus Cutaneus Internus.

Nervus Radialis.

Nervus Axillaris, five Articularis.

Nervi Crurales of each Side, formed by the first, second, and third Pairs of the Nervi Lumbares; and partly by the fourth and fifth.

Each of these Nerves is divided into three Portions; which are,

Nervus Femoris Cruralis, five Cruralis Superior.

Nervus Tibiae Cruralis, five Cruralis Tibialis.

Nervus Cruralis Pedis, five Cruralis Pedialis.

Nervi Sciatici, each formed by the Trunks of the last two Pairs of the Nervi Lumbares, and by the three or four following Pairs of the Nervi Sacri.

The principal Division of each of these Nerves produces the following:

Nervus Sciatico-cruralis.

Nervus Sciatico-popliteus.

Nervus Sciatico-tibialis.

Nervus Sciatico-peroneus.

Nervus Plantaris Internus.

Nervus Plantaris Externus.

I refer the Subdivisions of the Nervi Innominati, or of the fifth Pair, and those of the three Nervi Sympathetici, to the particular Description; in which I shall trace the Branches, Ramifications, and even the most remarkable Filaments, all the Way, to where they enter the Muscles, Viscera, Organs, &c.

#### NERVI OLFACITORII.

The first Pair of Nerves of the Medulla Oblongata, or Nervi Olfactorii, formerly named Processus Mammillares, arise by medullary Fibres, anteriorly and exteriorly from the Eminence of the Cerebrum, called *Corpora Striata*, between the anterior and middle Lobes.

They run forward toward the Os Ethmoides, on each Side of the Crista Galli, in form of medullary Ropes, having a very slender Consistence; and in this Course they receive some medullary Fibres from the anterior Lobes of the Cerebrum.

They are at first very thin; but, as they advance, they grow gradually larger and softer; and, having reached the Sides of the Crista, without any Communication between them, they send off a great Number of Filaments, which run through the Holes of the Lamina Cribrosa.

In their Passage through these Foramina, they are accompanied and invested by the same Number of small Productions from the two Laminæ of the Dura Mater as by particular Vaginae; and they are afterwards distributed by an Infinity of small Filaments, to the Membrane which lines all the internal Parts of the Nose.

Each olfactory Nerve communicates, by particular Filaments, with some Branches of the Nervi Ophthalmici, and Maxillaris Superior.

#### NERVI OPTICI.

The Optic Nerves arise from the Eminences of the Cerebrum, called *Thalami Nervorum Opticorum*; and, being first of all incurvated outward, they afterwards approach each other, as they run over the Sella Sphenoidalis of the Basis Cranii; at which Place they unite a little, and afterwards separate again in their Passage to the Foramina Optica, to the Orbits and Globe of the Eyes.

This Union of the Optic Nerves is on the anterior Part of the Glandula Pituitaria, and is of a very singular Kind. See CAPUT.

#### NERVI MOTORES OCULORUM COMMUNES.

The third Pair of Nerves, commonly called *Motores Oculorum*, arise immediately before the Border of the anterior Edge of the great transverse Protuberance, ordinarily termed the *Processus Annularis* of the Medulla Oblongata.

Each Nerve perforates the Dura Mater, behind the lateral Parts of the posterior Apophyses of the Sella Sphenoidalis; and afterwards runs along the upper Part of the Sinus Cavernosus of

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the Dura Mater, on one Side the Curvature of the Carotid Artery, to the superior Orbital, or sphenoidal Fissure; from thence it passes into the Orbit, and divides into four Branches, one superior, one internal, and two inferior, one of which is long, the other short.

The superior Branch goes off as soon as the Trunk enters the sphenoidal Fissure, and runs directly to the lower Side of the Musculus Rectus superior of the Globe of the Eye.

Having reached the Middle of that Muscle, or thereabout, it sends up a Branch to the Levator Palpebræ Superioris, and, when this Branch goes off nearer the sphenoidal Fissure, it may be looked upon as the second superior principal Branch of the Motor Oculi.

The other three Branches go off at some Distance from the superior Branch: The internal Branch is distributed to the Musculus Rectus Internus of the Eye, the short inferior Branch to the Rectus Inferior; and the long inferior Branch, to the Obliquus Inferior, into the Substance of which it penetrates, after having run along the Rectus Inferior.

Besides these four or five Branches, there is a small short Branch, which arises most commonly from that which goes to the Musculus Obliquus Inferior; and it forms a small lenticular Ganglion, that detaches several very fine Filaments round the Optic Nerve.

The Filaments, of the Ganglion perforate the Tunica Sclerotica of the Eye, and then run between this Coat and the Choroides, all the Way to the Iris, where they are distributed by very fine Ramifications.

The small lenticular Ganglion produces likewise other nervous Filaments, which communicate with the Ramus Internus, or Nasalis of the Orbital Nerve.

#### NERVI TROCHLEARES.

The fourth Pair of Nerves of the Medulla Oblongata, or Nervi Trochleares, are long and small, arising behind the Eminences called *Nates*, from the lateral Part of the medullary Expansion, which lies above the Passage between the third and fourth Ventricles of the Brain.

From thence they go on each Side to the Edge of the Fold, formed by the Dura Mater, on the Extremity of the Apophysis Petrosa, behind the Sella Sphenoidalis, that is, by the anterior Portions of the Septum Transversum.

There each Nerve perforates the Edge of the Fold above the Passage of the Nerve of the third Pair, and more backward and outward; afterwards it runs in the Duplication of that Fold, on one Side of the Nerve of the third Pair, along the upper Part of the Sinus Cavernosus, and passes into the Orbit thro' the Sphenoidal Fissure, and into the Musculus Trochlearis. Its Course is oblique over the other Nerves, and neighbouring Muscles; and it sends off small Filaments on each side, appearing to communicate with the first Branch of the fifth Pair, or Nervus Ophthalmicus.

#### NERVI TRIGEMINI.

The fifth Pair of Nerves is very large, and they rise anteriorly from the lateral Parts of the transverse Protuberance of the Medulla Oblongata, by a great Number of Filaments closely united together, which afterwards form two large flat Trunks, one on each Side. Each Trunk runs toward the Apex of the neighbouring Os Petrosus, where it perforates the Dura Mater, a little below the Edge of the Extremity or anterior Portion of the Septum Transversum of the Brain.

Having detached some Filaments to the Apex of the Apophysis Petrosa, or to a kind of sesamoid Bone, which is often found near this Apex, it enters the Sinus Cavernosus; and, having sent some other Filaments to the Dura Mater, it expands in the Sinus, and forms a kind of Plexus, or flat irregular Ganglion.

Afterwards the Trunk is divided into three large Branches, more or less slated, which run through the Sinus Cavernosus, being closely connected to the spongy Filaments thereof, and bathed in the venous Blood which it contains. These three Branches are disposed laterally on one vertical Plain, and separate after the manner of a Goose's Foot.

The first Branch, commonly called Nervus Ophthalmicus Willisii, is the smallest and longest of the three, and enters the Orbit through the Sphenoidal Fissure; for which Reason I name it Nervus Orbitarius.

The second, or middle Branch, called also Nervus Maxillaris superior, passes through the superior maxillary Foramen of the Os Sphenoides.

The third, or inferior Branch, called likewise Nervus Maxillaris inferior goes down through the Foramen Ovale or Maxillare inferius of the Sphenoidal Bone. The two maxillary Nerves are united at their Origin; for which Reason, some Anatomists have divided the large Trunk into two principal Branches; and the second of these Branches into two others.

#### NERVUS ORBITARIUS, vulgo OPHTHALMICUS.

The Orbital or Ophthalmic Nerve, which is the first Branch of the fifth Pair, as soon as it enters the Orbit through the Sphenoidal Fissure, is divided into three Branches, one superior or frontal, one internal or nasal, and one external or lachrymal; and before its Entry it sometimes gives, and sometimes receives, communicating Branches: It communicates by a Filament or two, with the Nerve of the sixth Pair, and with the Nerve commonly called Intercostalis.

The Ramus Superior or Frontalis, which might be termed Nervus Superciliaris, is the most considerable of the three, and runs along the superior Part of the Orbit; close to the Membrane which lines it, sending Filaments to the Fat which surrounds the Globe of the Eye, to the neighbouring Membranes; and to the Musculus Levator Palpebræ.

Afterwards it passes through the Foramen Superciliare, and, being divided toward each Side, it is spent in the neighbouring Portions of the Musculus Frontalis, Orbicularis, and Integuments, communicating with a neighbouring Branch of the Portio Dura of the Auditory Nerve.

The Ramus Internus, or Nasalis, of the Orbital Nerve, runs toward the Nose; and near its Origin sends off a Filament, which communicates with the small lenticular Ganglion, already mentioned.

This Filament comes sometimes from the Trunk of the Orbital Nerve before the Division, and adheres to the internal Branch all the Way, to where the Mater Communis is divided.

This Nasal Branch runs first of all obliquely over the Optic Nerve, and under the two muscular Levatores, giving off some Filaments to the nearest Parts of these Muscles: Afterwards it runs between the Musculus Rectus Internus, and Obliquus Major, along the Inside of the Orbit; and, in its Passage, sends a small Filament through the Internal orbital Hole; of which hereafter.

From thence it passes over the Musculus Rectus Internus, to the great or internal Angle of the Eye, where it is distributed to the neighbouring Parts; that is, to the Caruncula and Sacculus Lachrymalis, to the nearest Portions of the Musculus Orbicularis, Superciliaris Pyramidalis Nasi, and to the Integuments.

The small lateral Filament which it sends through the Orbital Hole, returns into the Cranium, running up from before, backward, on one Side of the Os Cribrosum; and, having reached the fore Part of the Duplication of the Dura Mater, it joins the Filaments of the Olfactory Nerve, or the Lamina Cribrosa, together with which it passes through the anterior Holes of that Lamina, and is distributed to the Nose.

The Ramus Externus, or Lachrymalis, goes chiefly to the Glandula Lachrymalis, upon which it is distributed, and from whence it has its Name. It seems sometimes to be a Branch from the Ramus Frontalis, and it often arises from the Orbital Nerve more posteriorly than the other Branches: It adheres closely to the Dura Mater, and runs obliquely along the Inside of the Orbit, on the Musculus Rectus Externus, to the Glandula Lachrymalis.

Before it reaches the Gland, it sends a small Branch to the external lateral Part of the Orbit, which is sometimes lost in the Diploë of the Cranium, and sometimes perforates the neighbouring Part, either of the Os Frontis, or the Os Malæ, &c. sending Filaments to the nearest Portions of the Musculus Temporalis, Orbicularis Palpebrarum, Masseter, &c. and of the Integuments; and it likewise gives Filaments to the Fat, and Membrana Conjunctiva of the Eye.

#### NERVUS MAXILLARIS SUPERIOR.

The Superior Maxillary Nerve, the second Branch of the fifth Pair, goes out of the Cranium between the Foramen Ovale, and Fissure of the Os Sphenoidale, passing through the Foramen Rotundum, or Maxillare Superius of the same Bone.

Immediately after its Passage, it sends a Filament to the Outside of the Orbit, which, having perforated the Os Malæ, is distributed to the Parts which cover that Bone, communicates with a neighbouring Branch of the Portio Dura of the Auditory Nerve; and sends small Filaments to the Fat in the lower Part of the Orbit.

Soon afterwards it is divided into three Branches, the first of which I name Suborbitarius; the second, Palatinus; and the third, Spheno-palatinus; which last is sometimes only a Branch of the first; but still the common Division may be obtained.

The suborbitary Branch is the most considerable of the three: It runs in the Canal of the inferior Portion of the Orbit, and goes out by the exterior orbital Hole, which is sometimes double.

In this Passage it sends downward, through the Holes of the Canal, small Filaments, which enter the Sinus Maxillaris, and are distributed to the Membrana Pituitaria in that Sinus,



Sinus, to the Substance of the Bone, to the Alveoli, to the anterior Dentes Molares, and to the Dentes Canini and Incisores.

As it enters the Canal, it sometimes gives off a Filament to the Posterior Molares; and among all these Filaments there is at least one, which runs along the upper Side of the Arch of the Palate, to the Union of the Ossa Maxillarea.

This Branch, having passed out of the bony Canal through the Foramen Suborbitarium Anterius, is distributed to the Musculus Orbicularis Palpebrarum, to the neighbouring Muscles of the Nose and Lips, and to the Integuments; communicating with a Branch of the Portio Dura of the Auditory Nerve.

The Ramus Palatinus of the Superior Maxillary Nerve runs down before the Pterygoide Apophyses of the Os Sphenoides, in the Canal formed by the Os Maxillare, and the Os Palati; and, having passed out of that Canal, through the Foramen Palatinum Posterius, it is distributed by several Filaments to the glandular Coat of the Palate, to the Septum Palati, and Muscles belonging to that Part. Some of these Filaments go as far as the Foramen Palatinum Anterius or Incisurum.

As it runs down in the Canal, it is, at first, a little bent, and then sends Filaments to the Musculus Pterygoideus Externus, to the Peristaphylini, and to the Arch of the Pharynx: It likewise sends other Filaments through the small Holes in the posterior Part or Tubercle of the Os Maxillare, to the Sinus Maxillaris, and posterior Dentes Molares.

The Ramus Spheno-palatinus passes through the bony Hole of the same Name, and is distributed to the Musculus Pterygoideus Internus, to the posterior Parts of the Nares, to the neighbouring Sinus Sphenoidales, and to the Tuba Eustachiana.

It likewise sends a Filament thro' the Foramen Pterygoideum, which perforates the Root of the Apophysis Pterygoidea from behind forwards, and joins the Nervus Maxillaris Inferior.

#### NERVUS MAXILLARIS INFERIOR.

The inferior Maxillary Nerve, the third Branch of the fifth Pair, is larger at its Origin than the other two: It goes out of the Cranium by the Foramen Ovale of the Sphenoidal Bone, and runs between the two Musculi Pterygoidei, below the great Sinus of the lower Jaw, where it enters the bony Canal of that Jaw.

As soon as it leaves the Cranium, it sends off four principal Branches; and, before it enters the Canal of the lower Jaw, it gives off another to the Tongue: The four first Branches arise very near each other, so that the Size of this Nerve decreases very much between the Musculi Pterygoidei.

The first Branch of this Trunk runs up to the Temporal Muscle, on the Inside of which it is distributed, and also between its Fibres.

The second Branch runs behind the Condyle of the lower Jaw, where it divides into two Filaments, which run from within, outward; and communicate with the neighbouring Branch of the Portio Dura of the Auditory Nerve, behind the Outside of the Condyle.

At the Origin of these two Filaments, it sends off a small Branch, which runs up before the external Ear toward the Temples, giving Filaments to the Concha of the Ear in its Passage.

The Branch of this Trunk passes between the two Apophyses of the lower Jaw, perforates the lower Part of the temporal Muscle, and gives it several Filaments.

Afterwards it bends downwards upon the Musculus Masseter, to which it is chiefly distributed, giving Filaments to the neighbouring Integuments, and communicating with the Portio Dura of the Auditory Nerve, on the Side of the Os Male. It terminates by Filaments which go to the Musculus Buccinator, to the Muscles of the under Lip, and to the Integuments of these Parts.

The fourth Branch of the Trunk of the Inferior Maxillary Nerve is often no more than a Ramification of the third Branch, which goes off near its Origin. It passes over the Musculus Pterygoideus Externus, to which it gives Filaments, and is distributed to the Pterygoideus Internus, and to the nearest Portion of the Temporalis.

It is likewise distributed to the Musculus Buccinator, to the Glands of the Mouth, and Muscles of the Lips; sometimes it sends off a Filament, which runs up upon the Concha of the external Ear.

Besides these four Branches, several small Filaments go off on each side, one of which runs to the Foramen Pterygoideum, where it joins a Filament of the Nervus Maxillaris Superior, and then continues its Course to the Membrane, which covers the Vomer and neighbouring Parts of the Internal Nares.

The Branch that goes to the Tongue, which may be termed Nervus Lingualis, or Hypoglossus minor, to distinguish it from the Hypoglossus major, which belongs to the ninth Pair, is detached from the Maxillaris Inferior, as it passes between the Musculi Pterygoidei, and sometimes a little sooner.

It is a very considerable Branch, and sometimes nearly as large as the Trunk, which it accompanies between the two Muscles already mentioned; and, leaving it a little above the Canal of the lower Jaw, it runs over the Pterygoideus Internus, and gives it some Filaments.

This Ramus Lingualis, a little after its Origin, communicates with the Trunk by a short collateral Branch; which is sometimes plexiform. At this Place it sustains a particular Filament, which, according to the common Opinion, arises from it, and goes to the internal Ear.

This particular Filament of the Nervus Lingualis is supposed by Anatomists to be a Recurrent, which runs up backward through the Tympanum, and joins the Portio Dura of the Auditory Nerve; but as the Angle which it makes with the small Nervus Lingualis, is very acute, and turned forward, there is more Reason to think, that it comes from the internal Ear to that Nerve.

Afterwards this Lingual Branch passes under the lateral Part of the Tongue, and over the Glandula Sublingualis, giving Filaments to the neighbourhood Portions of the Muscles of the Tongue, and to those of the Os Hyoides, and Pharynx.

Having communicated, by several Filaments, with the Extremities of the Nerve of the ninth Pair, or Lingualis major, it enters the Substance of the Tongue, and terminates near its Apex or Point.

Lastly, the inferior maxillary Nerve, before it enters the Canal of the lower Jaw, sends Filaments to the neighbouring Portions of the Musculus Pterygoideus Internus, Digastricus, &c. It likewise detaches a Filament or two along the Periosteum, to be distributed to the Musculus Mylo-hyoidæus, and Glandula Sublingualis. The Marks of these Filaments often appear upon the Bone, all the Way from their Origin; and sometimes they pass through a small entire bony Canal, lying on the Surface of the Inside of the Bone.

After the inferior maxillary Nerve enters the Canal of the lower Jaw, it runs under the Alveoli, and distributes Filaments to each Tooth, all the Way to the Hole near the Chin, where it sends another Branch forward into the Diploë, which is distributed to the other Teeth, that lie between that Hole and the Symphysis of the Chin.

#### NERVI MOTORES EXTERNI.

The Motores Externi, which make up the sixth Pair of Nerves from the Head, are smaller, but yet a little larger than those of the fourth Pair. They arise from the Union of the Medulla Oblongata between the great transverse Protuberance, and the Corpora Olivaria; whence they advance to the Dura Mater, and enter it on the Extremity of the Production of the Os Occipitis behind, and a little on one Side of the Symphysis of that Bone, with the Os Sphenoides.

Each of these Nerves runs afterwards in the cavernous Duplication of the Dura Mater, on one Side of the Bottom of the Sella Sphenoidalis, and of the Carotid Artery, to which it adheres very closely; and it there communicates with a Branch of the fifth Pair, by one or two short Filaments, as has been already said in the Description of the Orbital Nerve.

Immediately after and behind this Communication, the Motor Externus sends down a Filament, which at first appears to run from before, backward, like a Recurrent; and presently enters the large bony Canal of the Apophysis Petrosea, on one Side of the internal carotid Artery.

This nervous Filament, which is sometimes double, is commonly taken for the Root or Origin of the celebrated intercostal Nerve, which I term *Sympatheticus major*; but, as it makes an acute Angle in an opposite Direction, with the Nerve of the sixth Pair, it seems rather to run up with the Carotid Artery, and to join that Nerve, than to arise from it.

The Nerve of the sixth Pair, which I have sometimes seen double, or split in two Parts, before it enters the Dura Mater, passes afterwards thro' the Sphenoidal or superior Orbital Fissure, to the Musculus Rectus Externus of the Globe of the Eye.

#### NERVI AUDITORII.

The Nerves of the seventh Pair, termed Auditorii, arise from the lateral and posterior Part of the great transverse Protuberance of the Medulla oblongata. Each of these Nerves is double, or consists of two Ropes, which accompany each other very closely to the Foramen Auditorium Internum of the Apophysis Petrosea.

One of these Ropes is small, solid, and anterior, being called the *Portio Dura*; the other less solid and posterior, called *Portio Mollis*. Both these Portions are particularly described under the Article *AURIS*.

#### NERVI SYMPATHETICI MEDII.

The Nerves of the eighth Pair, called by the Antients *Par Vagum*, and which I have named *Nervi Sympathetici Medii*, arise from the posterior Part of the Medulla Oblongata, from



The great transverse Protuberance, and from the anterior Part of the Corpora Olivaria, by several separate Filaments, which are afterwards collected in a Fasciculus, that runs toward the anterior Part of the Foramen Lacerum of the Basis Cranii, where it perforates the Dura Mater, immediately before the Extremity of the great lateral Sinus.

The Passage of this Nerve is divided from that of the Sinus, by a small membranous Septum of the Dura Mater, and by the little bony Prominences of the Foramen Lacerum, mentioned in the Description of the Skeleton.

This great Fasciculus does not penetrate the Dura Mater through a single Opening, and as one Rope; for several of the anterior Filaments form a particular Portion, divided from the main Body by a very thin membranous Septum.

The Filaments, which compose the large Portion, when carefully examined, seem to perforate the Dura Mater separately, by small Holes or Pores, which lie very near each other.

Tho' these two Portions go out separately, they are looked upon as a common Trunk; and the small Portion is looked upon as a Branch of the great one, which lies behind the other, and is esteemed the true Trunk of this eighth Nerve.

As this Trunk goes out, it receives backward a small nervous Rope, which runs up laterally from the spinal Canal; and, passing thro' the great occipital Hole, on the Dura Mater, joins this Trunk. This small Rope is termed *Nervus Accessorius Oculi Paris*, or *Nervus Spinalis*.

As the two Portions pass through the Dura Mater and Foramen Lacerum, they are closely united together, and communicate by Filaments, which increase the Size of the small Portion. The large Portion communicates likewise with the Nervus Accessorius, to which it is strongly connected during this Passage.

The small or anterior Portion, having passed out of the Cranium, separates from the large one, as a Branch from a Trunk; and from thence it has been called *the first Branch of the eighth Pair*. It is bent in form of an Arch; and, passing interiorly on the Side of the Digastric Muscle, it supplies the Musculi Genio-Hyoidæi, those near the Basis of the Tongue, and those of the Pharynx.

About two Fingers-breadth from where it leaves the Cranium, this Portion sends backward one Branch, which is bent in the same Direction, like an inverted Arch, and detaches from its convex Side at least three Filaments. The first, which is sometimes double, communicates with the Trunk of this eighth Pair, on one Side of the Ganglion of the intercostal or great sympathetic Nerve. The second joins the Nervus Accessorius, and the third goes to the Pharynx.

Afterwards this small Portion goes to the Tongue, where it communicates with the Extremities of the small Nervus Hypoglossus, or Ramus Lingualis of the inferior Maxillary Nerve, and with those of the great Hypoglossus, or Nerve of the ninth Pair.

The large Portion of the eighth Pair, or middle Sympathetic Nerve, adhering by one Side to the first Ganglion of the Sympatheticus Maximus, and by the other to the Hypoglossus major, to both which it gives communicating Filaments, sends off, a little below the small Portion, another smaller Branch, which goes by several Filaments to the Pharynx.

A little below, on one Side of the Union of the eighth Pair with the ninth, this Portion, or Trunk, forms a Ganglion, and gives off a third Branch, which runs before the internal Carotid Artery to the Larynx, Musculi Laryngis, Glandulæ Thyroides, and Muscles of the Os Hyoides.

This third Branch passes between the Cornu of the Os Hyoides, and the Ala of the Cartilago Thyroides; and, running in between that Cartilage and the Cartilago Cricoides, it communicates with the Extremities of the Nervus Recurrens.

Afterwards the large Trunk runs down on the fore Side of the first Ganglion of the Nervus Sympatheticus Maximus, along the anterior vertebral Muscles of the Neck, by the Side of the Carotid Artery, and behind the internal Jugular Vein; being accompanied by the intercostal Nerve, as far as the last Vertebra of the Neck.

Through all this Course, this Trunk is invested by a kind of cellular, filamentous, or membranous Vagina, common to it with the internal Carotid Artery, the internal Jugular Vein, and the great Sympathetic Nerve. In its Passage it gives small Branches to the neighbouring Parts, to the Pharynx, Oesophagus, and to the Carotid Artery and Jugular Vein. One of these small Branches, in its Course downward, joins a small Branch of the second Cervical Pair, and is distributed to the Glandula Thyroides.

The Trunk having reached as low as the Larynx, and Glandula Thyroides, sends out a Branch; which, running down on the fore Side of the internal Carotid Artery, joins a

Filament from the second Ganglion of the Intercostal Nerve, with which it runs to the Plexus Pulmonaris.

Afterwards, both Trunks of the Nerves of the eighth Pair enter the Thorax, before the Origin of the Subclavian Arteries, which they cross, and run behind the Lungs to the Oesophagus. At this Place there is some Difference in the Distribution of the two Trunks, which, in every other respect, is pretty much the same.

As the Right Trunk passes before the Subclavian Artery, it sends off a considerable Branch, which bends backward under the Artery, and runs up on one Side of the Aspera Arteria; to which, and to the Oesophagus, it sends Filaments as high as the Larynx. This Branch is called Nervus Recurrens.

This recurrent Nerve, having reached the Larynx, sends Branches to the Muscles thereof, to the Pharynx and Glandula Thyroides. Then it runs in behind the Cornua of the Cartilago Thyroides, where it joins the Extremity of the third Branch of the Trunk of this eighth Pair.

The Right Trunk, having given off the Recurrent of the same Side, runs down on one Side of the Aspera Arteria, and behind the Origin of the Right Lung, where it adheres to the Oesophagus, and in this Course it sends out several Branches.

The uppermost Branches run on the fore Side of the lower Extremity of the Aspera Arteria and Bronchia, and are all united to Filaments of the great Sympathetic Nerve, before the Bifurcation of the Trachea, and likewise to the Ramifications of the same Nerve from the other Side. The other Branches which the Trunk sends off, as it runs down behind the Bronchia and Lungs, unite with the Filaments of the great Sympathetic Nerve.

The Left Trunk of the Eighth Pair is ramified in the Thorax, much in the same manner with that of the Right Side, with this Difference only, that the Left Recurrent Nerve goes out lower than the Right; for it passes below the great Curvature of the Aorta, and behind the Ductus or Ligamentum Arteriosum, and afterwards runs up on one Side of the Trachea Arteria to the Larynx, much in the same manner with the other.

This Difference in the going off of the two Recurrents is the Reason why the Left Trunk does not run down so straight as the Right, and the Left Recurrent gives off some of the Branches, which answer to those which come from the Trunk itself on the Right Side.

Immediately after the Origin of the Left Recurrent, the Left Trunk sends down a Branch, which goes partly to the Plexus Pulmonaris, and partly to the Oesophagus and Aorta.

These reciprocal Ramifications of both Trunks of the Eighth Pair, and their mutual Communications with the Filaments of the Intercostal or great Sympathetic Nerve, form particular Intertextures called *Plexus*; the most considerable of which are those called *Plexus Cardiacus*, and *Plexus Pulmonaris*.

The Plexus Cardiacus is formed above the Lungs, on the fore Side of the Bronchia, and produces a great Number of Filaments; some of which go to the Pericardium, and the rest go through it, round the great Vessels to be distributed to the Heart.

The Plexus Pulmonaris is composed of the following Ramifications, which the two Trunks send off, as they run down behind the Lungs. Some of the Filaments detached from thence run above the Bronchia at their Origin; but the greatest Part run below, being distributed along with them through the whole Lungs.

Besides these Plexus, the two Trunks give off Ramifications to the Parts near which they pass; such as the posterior Part of the Mediastinum, Oesophagus, and Aorta; and by all these Ramifications the Trunks are gradually diminished.

After having sent off the two Plexus, these Trunks change in a very remarkable manner. The Trunk on the Right Side runs insensibly backward, as it descends, and that on the Left Side forward, in the same manner.

In their Passage they send several Filaments forward and backward to the Oesophagus, which unite at different Distances, both with the Filaments from the same Trunk, and with the like Filaments from the Trunk on the other Side, and the posterior Filaments from the Left Trunk are in some Subjects more considerable than the anterior ones from the Right Trunk.

These repeated Divisions and Re-unions, which represent a kind of Plexus, cause the original Trunks to degenerate, in some measure, into two particular Ropes, one anterior, the other posterior, which are called *Nervi Stomachici*.

The posterior Stomachic Nerve arises principally from the Right Trunk, and the anterior from the Left Trunk; and, accordingly, the posterior Rope is oftentimes much stronger than the anterior, because of the Difference between the Filaments of which each of them consist.

These



These two stomachic Ropes pass along with the Extremity of the Oesophagus, through the Opening in the small Muscle of the Diaphragm, and are distributed on the Stomach. The anterior Rope is spread on the upper, or, as it is commonly call'd, *The fore Side*, and the posterior on the lower, or back Side.

The Ramifications of both Ropes communicate with each other, and form particular Intertextures principally near the upper Orifice of the Stomach, and along the small Curvature, all the Way to the Pylorus; by all which a kind of Plexus is formed, call'd *Coronarius Stomachicus*.

This Coronary Plexus, thus formed, sends off near its Origin two small Ropes; one of which seems to come principally from the great anterior stomachic Rope, the other from the posterior Rope. These two small Ropes unite near the Trunk of the Hepatic Artery, which having accompanied for a little Way, they are divided into two very short Branches.

These two Branches run presently afterwards to the Right and Left Hands, immediately above the transverse Rope, which forms the Communication between the Semilunar Ganglions of the two great sympathetic Nerves; and they terminate by uniting this Rope in a triangular Form.

In this manner end the Nerves of the eighth Pair, or the Sympatheticus Medius of each Side, by contributing, together with the Sympatheticus Maximus, to the Formation of several Plexus in the Abdomen, which are ascribed principally to the last-named Nerve. Among these are the Plexus Hepaticus, Splenicus, Mesenterici, and even the Renales.

We see likewise, that these two great Pairs of Nerves have a perpetual Correspondence through all the Viscera of the Abdomen, as well as in the Thorax.

#### NERVI ACCESSORII OCTAVI PARIS.

The Nervi Accessorii of the eighth Pair arise by several Filaments from both Sides of the Medulla Spinalis of the Neck, sometimes higher, and sometimes lower. Each of them runs up between the two nervous Planes, which come out from the spinal Marrow, to form the Vertebral Nerves; and they gradually increase in their Course upwards by means of several Filaments, which they receive from the posterior nervous Planes.

Having reached above the first Vertebra, each Nerve is fix'd to the back Side of the Ganglion of the Nervus Suboccipitalis, or that of the tenth Pair; and, having, at the upper Part of this Adhesion, received two Filaments from the posterior Portion of the Medulla, they part from the Ganglion, and continue their Course upward. I have sometimes found these two Filaments without any Communication with the Ganglion, or with the anterior Plane; so that they seem rather to belong to the Nervus Accessorius, than to the Suboccipitalis.

They enter the Cranium by the great Occipital Foramen; and, having communicated with the Origin of the Suboccipitalis, or Nerves of the tenth Pair, and with the great Hypoglossi or ninth Pair, they return out of the Cranium with the Nerves of the eighth Pair, or Sympathetici Medii, with which they communicate in their common Passage through the Cranium.

As soon as they get without the Cranium, each of them gives off a considerable Branch, which divides into two. One is very short, and immediately joins the Trunk of the eighth Pair; the other, which is longer, joins the small Portion, or first Branch, which goes to the Tongue. They likewise communicate with the great Hypoglossus and Sympatheticus on each Side. Afterwards the Nervus Accessorius runs backward, and, perforating the Musculus Sterno-mastoidæus, runs to the Trapezii, on which it is distributed, and terminates after having supplied the Rhomboides. In this Course it communicates with the first three Pairs of the Cervical Nerves, and gives Branches to the Glands of the Neck, to the Musculus Angularis of the Scapula, the Complexus, the Occipitalis, and to the Integuments.

#### NERVI HYPOGLOSSI EXTERNI SIVE MAJORES.

The ninth Pair of Nerves, as they are commonly call'd, or the Par Linguale, arises on each Side, between the Corpora Pyramidalia and Olivaria by several small Filaments, which, uniting together, form ordinarily two small Ropes on each Side. These two Ropes perforate the Dura Mater by two small separate Holes, and afterwards soon unite in one Trunk on each Side, which goes out of the Cranium, by the anterior Condylode Hole of the Os Occipitis.

As soon as they leave the Cranium, each Trunk adheres very closely to the Outside of the Trunk of the eighth Pair, and to that of the tenth. Thence each Nerve passes on the fore Side of the large Ganglion of the Sympatheticus Maximus, and runs between the internal Jugular Vein, and the neighbouring Carotid Artery, and then to the Tongue on one Side of the Digastric Muscle.

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In its Passage between the Jugular and Carotid, it sends down a Branch to the Jugular Glands, Musculus Cutaneus, &c. and behind the first Ganglion of the Intercostalis it detaches another, which runs down, till it joins the Nerve of the Eighth Pair, or Sympatheticus Medius. A little afterwards it gives off a third to the Musculus Omo-hyoidæus; Sterno-hyoidæus, and to the small Muscles of the Larynx.

Afterwards this Trunk of the ninth Pair bends near the Angle of the lower Jaw; and runs forward between the Musculus Cerato-basio-glossus, and Mylo-hyoidæus, under the Genio-glossus, to all which Muscles it gives Filaments; and it is afterwards lost in the Tongue, communicating with the Filament of the Ramus Lingualis of the Inferior Maxillary Nerve, and with the Branch of the same Name, belonging to the eighth Pair.

Before it bends near the Angle of the lower Jaw, a little below the Apophysis Styloides of the Os Temporis, it communicates with the first Cervical Pair, and then sends a small Branch to the Larynx, and another more considerable one, which runs down behind the Musculus Sterno-mastoidæus, on the anterior Muscles of the Neck, and communicates with the first and second Vertebral Pairs.

This last Branch communicates likewise with the Portio Dura of the Auditory Nerve, and with the following Vertebral Pairs; after which it terminates principally in the Musculus Sterno-hyoidæus, and Sterno-thyroidæus.

#### NERVI SUBOCCIPITALES.

The Suboccipital Nerves, or those of the Tenth Pair, arise a little lower, and more laterally, than the former, at the Extremity of the Medulla Oblongata, opposite to the posterior Part of the Condylode Apophyses of the Os Occipitis.

They come on each Side from the anterior Part of the Medulla, by a single Plane of small Filaments, and communicate by some collateral Filaments, with the first Cervical Pair, before they pierce the Dura Mater.

They pierce the Dura Mater directly outward, opposite to their Origin, at the same Place where the Vertebral Arteries perforate it inwards; both going, in a manner, through the same Holes, and the Nerves lying below the Arteries.

Afterwards they run down in the Duplication of the Dura Mater, and emerge again under the Edge of the great Occipital Foramen, crossing the Elongation or Occipital Funnel of that Membrane.

Having passed out of the Cranium, each of them runs to the posterior Notch of the superior oblique Apophysis of the first Vertebra of the Neck, in which it runs from behind forward, in Company with the Vertebral Artery, which lies above it in the same Notch.

Where it leaves this Notch, it forms a Ganglion, and gives Filaments to the Musculi Recti and Obliqui of the Head, besides one which runs down in the transverse Foramina of the Vertebrae of the Neck, along the Blood-vessels which lie there.

Having formed this Ganglion, and sent off these Filaments, it turns forward and downward over the transverse Apophysis of the first Vertebra, forming a sort of Arch with an ascending Branch of the first Cervical Pair.

This Arch surrounds the fore Part of the transverse Apophysis, and has several Communications with the first Ganglion of the great sympathetic Nerve, and by its convex Side adheres very closely to those of the eighth and ninth Pairs.

The superior Part of this Arch or Ganglion sends up a considerable Nerve, which is increased by the Addition of a short Branch belonging to the first Cervical Pair, and, running upward and backward on the convex Side of the Os Occipitis, is distributed to the superior and lateral Parts of the Head, by several Ramifications. This Branch is termed Nervus Occipitalis.

These Suboccipital Nerves have this in common with the other Nerves of the Medulla Oblongata, that each arises only by one anterior Fasciculus of Filaments, without any posterior Fasciculus, as in the Vertebral Nerves. We sometimes observe, indeed, a small posterior single Filament on each Side, but this seems rather to belong to the Nervus Accessorius of the eighth Pair, than to the tenth.

The particular Description of the Course, Division, and great Extent of the Nervi Sympathetici Maximi, commonly called Intercostales, will come in most properly after that of all the Vertebral Nerves.

#### THE VERTEBRAL NERVES IN GENERAL.

The Vertebral Nerves are all those which arise from the Medulla Spinalis, and go out from the great Canal of the Spine, thro' the lateral Foramina, formed by the corresponding Notches in the Vertebrae.

The original Trunk of each Vertebral Nerve arises commonly by two flat Fasciculi of medullary or nervous Filaments, one anterior,

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anterior, the other posterior. These two Fasciculi, on each Side, run towards each other, and perforate laterally the Production of the Dura Mater; after which they presently unite in a kind of Ganglion, from which the Trunk is produced.

I reckon the Vertebral Nerves by Pairs, in the common manner, beginning with those which pass between the first and second Vertebra. This Enumeration agrees with that of the Vertebrae themselves; there being seven Pairs of Vertebral Nerves belonging to the Neck, termed *Cervicales*; twelve to the Back, called *Dorsales*; five to the Loins, named *Lumbares*; and five or six to the Os Sacrum, called *Sacri*.

This Distribution is fixed chiefly by the Dorsal Nerves, called *Costales*; for there is exactly the same Number of these Nerves as of Ribs, and the first Pair of costal Nerves passes between the first and second Vertebrae of the Back.

#### FIRST PAIR OF CERVICAL NERVES.

The first Pair of Cervical Nerves passes between the first and second Vertebra of the Neck; lying more backward than the subsequent Pairs, and having larger Ganglions.

The Trunk of each of these Nerves sends out anteriorly a small Branch, which runs up on the fore Side of the transverse Apophysis of the first Vertebra, and forms a communicating Arch with the small descending Branch of the Nervus Suboccipitalis of the same Side, already mentioned; and consequently communicates likewise with the great sympathetic Nerve.

Posteriorly it sends out a considerable Branch, which is soon increased by a communicating Branch from the second Cervical Pair. This Branch communicates, also, with the Suboccipitalis, and afterwards passes between the Musculus Complexus, and Rectus minor posticus of the Head; and bending backward, is distributed to the other small posterior Muscles of the Head, and to the Splenius, Complexus, and Trapezius. It passes next over these Muscles to the Occiput, where it is ramified backward, upward and forward, to the Musculus Occipitalis and Temporalis of the same Side.

It likewise gives off a Filament, which, dividing into two, sends up one Portion to the Musculus Sterno-mastoidæus, round the Nervus Accessorius Octavi Paris, or Sympatheticus Medius; and, running afterwards behind that Muscle, it is distributed to the Splenius.

The other Portion of this Filament runs downward, and, bending in a particular manner, communicates with the second Cervical Pair, and with the Sympatheticus major. It likewise sends smaller Filaments to the anterior Muscles of the Head and Neck, and to the Sterno-mastoidæus and Splenius.

One of these small Filaments communicates with the great Nervus Lingualis, or ninth Pair from the Brain, and goes to the Musculus Sterno-hyoidæus, Thyro-hyoidæus, and Thyroide Glands.

#### SECOND PAIR OF CERVICAL NERVES.

The second Cervical Pair passes between the second and third Vertebra of the Neck; and, as it goes out, communicates, forward, with the great Ganglion of the Sympatheticus maximus, upward with the first Cervical Pair, and downward with the third.

Afterwards the Trunk on each Side is divided into several Branches; but, from the Place of its Union with the first Pair, it sends off, first of all, one Filament, and then another from where it joins the third Pair.

Lower down, these two Filaments unite into one, which runs down along the internal Jugular Vein; and then, forming a considerable Arch, runs up along the Carotid Artery, as high as the Parotid Gland, where it joins and communicates with the Trunk of the ninth Pair of the Medulla Oblongata. A Filament is detached from the Curvature or Arch, which is spent on the Musculus Coraco-hyoidæus, Sterno-hyoidæus, and Sterno-thyroidæus.

Opposite to the Sterno-mastoidæus, the Trunk sends off a Branch, which, behind that Muscle, communicates with the Nervus Accessorius of the eighth Pair, after the manner of a Plexus.

This Branch runs afterwards behind the Musculus Splenius; perforates the upper Portion of the Trapezius between the great Occipital Nerve, and the Ear; and ascends to the lateral Part of the Occiput, where it communicates with its Fellow from the other Side. It is distributed on each Side to the Muscles just mentioned, and to the Angularis Scapulae.

The Trunk of this second Cervical Pair sends down other Branches to the middle Part of the Musculus Trapezius, Sterno-mastoidæus, and neighbouring Vertebral Muscles; and sometimes we observe a Communication backward, between this Trunk, and the third Cervical Pair.

Having given off these Branches, this Trunk advances toward the posterior Edge of the middle Portion of the Sterno-mastoidæus, upon which it bends from behind forward, sending

out several Branches. The first Branch runs downward and backward, and is distributed by several Branches to the Musculus Scalenus, Transversalis Colli, &c.

The second Branch communicates with the third Cervical Pair, at the Place where this Pair produces the Diaphragmatic Nerve, to the Formation of which it contributes. The third Branch is only a Filament, which, running upward, communicates with one or two Filaments of the inferior Branch of the Portio Dura Nervi Auditorii.

The Extremity of this Curvature on the fore Side of the Sterno-mastoidæus, is divided into two Branches, one of which runs upward, the other downward. The superior Branch ascends on this Muscle, to the lower Part of the Ear, sending one Branch behind the Ear, and another to the Parotid Gland, where it joins the Trunk of the Portio Dura of the auditory Nerve, and runs up on the fore Side of the Ear.

The inferior Branch runs from behind forward, to be ramified on the Musculus Cutaneus, and distributed to the Integuments of the Throat, in which it is lost near the Larynx, having first given Branches to the Musculi Sterno-hyoidæi. It likewise communicates with a descending Branch of the Portio Dura, and with another of the ninth Pair from the Brain.

Near its Origin this inferior Branch sends down a Ramification on the back Side of the Sterno-mastoidæus, gives other Branches to the Jugular Glands, to the Fat and Integuments of the lateral and lower Part of the Neck, and passes before the middle Portion of the Clavicula, below which it is lost in the lateral Integuments of the Thorax.

#### THIRD PAIR OF CERVICAL NERVES.

The third Cervical Pair passes between the third and fourth Vertebrae of the Neck, and communicates upward with the second Pair, downward with the fourth, and forward with the great sympathetic Nerve, and with a Filament from the ninth Pair of the Medulla Oblongata. It communicates, likewise, with the Nervus Accessorius of the Sympatheticus Medius, by a Filament, which goes to the Musculus Trapezius.

Each Trunk of this third Pair sends several Branches to the anterior, posterior, and lateral Parts of the Neck, that is, to the Muscles, Glands, Membranes, Fat, and Skin, all the Way to the neighbouring upper Parts of the Thorax and Shoulder.

Among the posterior Branches, there is one which goes to the Musculus Supra-spinatus, and, passing over the Notch in the superior Costa of the Scapula, gives Filaments to the Extremity of the Omo-hyoidæus; and another small one, in its Passage to the Musculus Trapezius, communicates with a Filament of the Nervus Accessorius of the eighth Pair.

Of the middle Branches, some go to the Jugular Glands, to the Musculi Subclavii, to the neighbouring Portions of the Pectoralis, Deltoides, and Trapezius, and to the Integuments of those Parts.

Among the anterior Branches, there is one, which, being strengthened by a Branch from the second Cervical Pair, unites lower down with another Branch of the fourth Pair, and thus forms the Nervus Diaphragmaticus.

This Diaphragmatic Nerve runs on the fore Side of the Musculus Scalenus, and enters the Thorax behind the anterior Extremity of the Clavicula, receiving, immediately afterwards, a Filament from the first Dorsal Pair, and communicating with the great Sympatheticus. It runs down obliquely forward, before the Subclavian Artery, and on one Side of the Nervus Sympatheticus medius, near the Origin of the Recurrent.

In the Thorax this Diaphragmatic Nerve runs down immediately before the Origin or Root of the Lung, along one Side of the Pericardium, to which it adheres very closely, and then running a little backward, it soon enters the Diaphragm.

It is distributed by numerous Ramifications on the great Muscle of that Organ, sending likewise some Filaments of the lower Portion, by which it communicates with the great Sympathetic Nerve, and with the neighbouring Plexus of the Abdomen.

The Right Diaphragmatic Nerve runs along the Vena Cava superior, and on that Account appears to be situated more anteriorly than the Left.

This Left Diaphragmatic Nerve lies, first of all, a little backward, toward the Trunk of the Aorta, and afterwards runs in a longer Course than the Right, being bent in order to pass by that Portion of the Pericardium which answers to the Apex of the Heart; for which Reason it is longer than the Right. Thence it is bent backward, and distributed to the Diaphragm in the same manner as the other.

#### THE LAST FOUR PAIRS OF CERVICAL NERVES IN GENERAL.

The last four Pairs of Cervical Nerves pass between the Portions of the Musculus Scalenus, being, in general, larger than



the three former. They are united by their Trunks, and, together with the communicating Branch of the third Pair, and Trunk of the first Dorsal Pair, they form a very large Plexus, which is, in a manner, inclosed in a membranous Vagina, and produces six considerable Ropes, like so many particular Trunks, which are distributed to the upper Extremity, and go by the general Name of the Nervi Brachiales.

#### THE BRACHIAL NERVES IN GENERAL.

The Brachial Nerves consist of six Ropes on each Side; and in 1697. *Du Verney* gave to five of them the following Names: Nervus Musculo-cutaneus, five Cutaneus externus, Medianus, Cubitalis, Cutaneus Internus, and Radialis, taking for a Branch of the Radialis that Nerve which I look upon as the sixth principal Rope, and which I name Axillaris or Articularis.

These six Ropes do not rise separately; and their Origin is so complicated, that it is not easy to determine it; but, in general, it seems, that each of the five Vertebral Pairs, which form the great Plexus, contributes to the Formation of each Brachial Rope.

Four of these Nerves arise anteriorly from the great Plexus, and these are the Musculo-cutaneus, Medianus, Cubitalis, and Cutaneus internus; and the other two, the Radialis, and Axillaris, arise posteriorly.

The five Vertebral Pairs form the large Plexus in the following manner: The fourth and fifth Cervical Pairs, about an Inch or more after they go out, unite into one common Trunk. The seventh Cervical and first Dorsal Pair unite likewise into one Trunk, very near their Origin. The sixth Cervical Pair runs singly, for a considerable Space, between the two other Trunks; and afterwards is increased by a communicating Portion, which it receives from each of them.

These five large Vertebral Nerves, on each Side, thus mingled, interwoven, and complicated, divide again, and are disposed in a quite different manner from what is ordinary, forming the six Brachial Ropes, as follows:

The Nervus Musculo-cutaneus is formed by the Union of the fourth and fifth Cervical Pairs, and by their collateral Communication with the third and sixth Pairs.

The Medianus comes on one Side, from the Union of the sixth Cervical Pair with the fourth and fifth, and on the other from the Union of the seventh Pair with the first Dorsalis. These two Unions form an acute Angle, the Apex of which produces the Median Nerve.

The Cubitalis goes out from the Union of the seventh Cervical with the first Dorsal Pair, a little nearer the lower Side of the Angle of the Medianus.

The Cutaneus internus arises in the same manner.

The Radialis is the largest of the six, and goes out from the Apex of another nervous Angle, the upper Side of which is formed by the Union of the Trunks of the fourth, fifth, and sixth Pairs; and the lower Side by the Union of the seventh Cervicalis, and first Dorsalis.

The Axillaris goes out close to the Radialis, chiefly from the upper Side of the nervous Angle, and it communicates with all the rest.

Besides the great Brachial Nerves, several small Branches go out from each of the last four Pairs, which may most properly be now described.

#### FOURTH PAIR OF CERVICAL NERVES.

The fourth Cervical Pair passes between the fourth and fifth Vertebrae of the Neck, and communicates above with the third Pair, below with the fifth, and forward with the great Sympathetic.

It sends several Branches to the Musculus Scalenus, Angularis Scapulae, Rhomboides, Trapezius, and Pectoralis major; and likewise gives off a Filament, which contributes to the Formation of the Nervus Diaphragmaticus. Afterwards it advances a Finger's-breadth without any Ramification, and joins the Trunk of the fifth Cervical Pair.

At the Place of this Union, or a little before, it gives out a pretty considerable Branch, which, having sent a Filament to the Musculus Subscapularis, passes through the small Notch in the superior Costa of the Scapula, and gives other Filaments to the Supra-spinatus. This Branch runs afterwards under the last named Muscles, and under the Acromium, to the Infra-spinatus, and Teres minor.

#### FIFTH PAIR OF CERVICAL NERVES.

The fifth Cervical Pair passes between the fifth and sixth Vertebrae of the Neck, communicating with the fourth and sixth Pairs, and with the great Sympatheticus.

Afterwards each Trunk sends forward a Branch, which, uniting with a like Branch from the sixth Pair, is distributed to the Musculus Scalenus, to the Surface of the Pectoralis major, and to the neighbouring Integuments. This Trunk sends off, likewise, near its Origin, another Branch, which runs down behind the Origin of the sixth Pair, from which it receives a

small communicating Filament. Being thus strengthened, it runs down on the Outside of the Thorax, and is distributed to the Muscles there; passing first under the two Pectorales, and then between the Serratus major, and Subscapularis.

Afterwards continuing its Course downwards, it reaches the anterior, middle, and almost the lower Part of the Latissimus Dorsi, at the third false Rib; and terminates in this Muscle, and in the Integuments.

#### THE LAST TWO PAIRS OF CERVICAL NERVES.

The sixth and seventh Cervical Pairs, having passed in the common manner, under the sixth and seventh Vertebrae of the Neck, and having communicated with the other Nerves near them, send several Filaments to the neighbouring Parts.

The Branch of the sixth Pair, which unites anteriorly with a like Branch of the fifth Pair, to be distributed on the Thorax, sends down a Filament, which, together with another common to the seventh Cervical, and first Dorsal Pair, forms a kind of Arch, under which the axillary Artery passes.

All these Nerves give Filaments to the neighbouring Integuments; and some go likewise to the Axillary Glands.

#### NERVUS MUSCULO-CUTANEUS.

The Musculo-cutaneous Nerve, which naturally lies on one Side of the Cutaneus Internus, arises from the Union of the fourth and fifth Cervical Pairs, and partakes of their lateral Communication with the third and sixth Pairs.

Having reached the upper Extremity of the Musculus Coracobrachialis, it perforates it obliquely from above downward, and gives it several Filaments. Afterwards it runs down on the Arm behind, and under the Biceps, to both Portions of which it gives Branches.

Having got from behind the Biceps, it runs from within, outward, between the lower Extremity of that Muscle, and of the Brachialis, which it likewise supplies. In the Fold of the Arm it reaches the Skin immediately behind the Vena Mediana, and there it becomes a true Nervus Cutaneus. Thence it runs along between the Supinator Longus, and the Integuments, on the Inside of the Cephalic Vein, all the Way to the Thumb.

It is distributed to the Integuments on the fore Side of the Carpus, to those of the Thumb, and of the convex Part of the Hand. Before it reaches the Wrist, it passes over the Cephalic Vein, and communicates, at the Thumb, with a Branch of the Radial Nerve.

#### NERVUS MEDIANUS.

The Nervus Medianus lies between the Musculo-cutaneus and Cubitalis. It arises from the Union of three Branches, one belonging to the sixth Cervical Pair, one to the seventh, and one to the first Dorsalis. In some Subjects it is formed by the Union of two principal Branches, one of which comes from the Union of the first Dorsalis with the last Cervicalis, the other from the Union of the fourth, fifth, and sixth Cervicales.

It runs down on the Arm, along with the Brachial Artery, under the inner Edge of the Biceps, having first past behind the inferior Insertion of the Coracobrachialis, and reaches the Fold of the Arm between the lower Extremity of the Musculus Brachialis and Pronator Teres; giving Filaments in its Passage to all these Muscles on both Sides.

It passes behind the Ramus Medianus of the Basilic Vein, as it approaches the inner Condyle; and then runs backward cross the Pronator Teres, and downward between the Perforatus and Perforans, to which it gives Ramifications.

Below the Pronator Teres, it sends off a particular Branch, which runs along the Interosseous Ligament, behind the Pronator Quadratus, all the Way to the Wrist, giving Filaments to that Muscle.

Afterwards, having detached some cutaneous Ramifications, the Trunk passes under the internal transverse Ligament of the Carpus, to the Palm of the Hand, where it sends off numerous Branches to the Musculus Thenar, and Anti-thenar, two to the lateral concave Parts of the Thumb, two to those of the Index, two to those of the middle Finger, and one to the nearest Side of the Ring-finger, after having communicated with a Branch of the Cubital Nerve. These Branches go all the Way to the Ends of the Fingers, supplying the Integuments, Ligaments, and Tendons.

#### NERVUS CUBITALIS.

The Cubital Nerve arises from the Union of the seventh Cervical with the first Dorsal Pair; and communicates with the lower Root of the Median Vein.

It runs down on the Inside of the Arm, along the Musculus Anconaeus Maximus, between the Brachial Artery, and the Basilic Vein, sending off only small Filaments to the neighbouring Muscles and Integuments.



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It runs in between the inner Condyle of the Os Humeri and the Olecranon, where it is covered only by a kind of Ligament, and by the common Integuments; and this is what makes Strokes upon the Elbow so painful, even all the Way to the little Finger, where this Nerve ends.

Afterwards it runs down on the Musculus Ulnaris Internus, giving Filaments to the neighbouring Muscles, to the Pronator Quadratus, and Integuments; and, at the lower Extremity of the Ulna it is divided into two Branches, one large, the other small.

The large Branch, which may be reckoned the Continuation of the Trunk, passes on one Side of the Os Pisiforme, under the great transverse Ligament of the Carpus, to that Part of the Palm of the Hand which answers to the last two Fingers, where it gives some Filaments to the Integuments and Ligaments of the Carpus.

Afterwards it divides into three particular Branches, one of which forms a kind of Arch, being distributed to the neighbouring small Muscles of the Thumb, and to the Interossei; the second is bifurcated, and goes to the corresponding lateral concave Parts of the ring and little Fingers; and the third goes to the opposite lateral Part of the little Finger, and to the neighbouring Muscles.

The small Branch is turned outward behind the Tendon of the Ulnaris Externus, and goes to that Part of the Back of the Hand, which answers to the last two Fingers. It is distributed to the lateral convex Parts of these two Fingers, much in the same manner as the other Branch to the lateral concave Parts. It likewise supplies the Musculus Hypothenar, Metacarpus, and the Integuments, and communicates with a Branch of the Nervus Medianus.

### NERVUS CUTANEUS INTERNUS.

The internal Cutaneous Nerve is very small, and arises from the Union of the seventh Cervical, and first Dorsal Pairs, but chiefly from the latter. It runs over the other Brachial Nerves, and passes down on the Inside of the Arm, between the Muscles and Integuments.

It divides first into two Branches, which accompany each other very closely, as far as the inner Condyle, on one Side of the Vena Basilica, being covered by the Ramus Medianus of that Vein.

One of these Branches runs down under the Integuments which cover the Musculus Radialis Internus, and Ulnaris Gracilis; and is afterwards ramified on the Skin which covers the Wrist, and Beginning of the Palm of the Hand.

The other Branch runs a little more backward along the Integuments which cover the Musculus Ulnaris Internus and Ulna, upon which it is ramified all the Way to the little Finger.

### NERVUS RADIALIS.

The Radial Nerve, so called, because it accompanies the Radius, and the Radial Artery, arises from the Union of three compound Branches, one of which comes from the united Trunks of the fourth and fifth Cervical Pairs; the second from the single Trunk of the sixth Pair; and the third from the united Trunks of the seventh Cervical, and first Dorsal Pairs.

The Trunk of this Nerve lies deeper than the rest: First, it runs from before backward, bending round the Os Humeri, between the Musculi Anconæi, and that Bone.

This Curvature is oblique and contorted, answering to the Impression observable on the Bone; and above it the Radial Nerve gives Branches to the three Anconæi, especially to the Longus and Externus. Afterwards it turns from behind forward, between the Anconæus externus and the Brachialis.

It sends off, from the Curvature or Arch, some cutaneous Branches, the most considerable of which goes to the external Condyle of the Os Humeri, and is distributed to all the Integuments which cover the Radius on the fore and outer Sides, and to those which cover the exterior Parts of the Carpus, and Back of the Hand, all the Way to the Thumb.

At the Fold of the Arm, the Radial Nerve turns outward, and runs down between the lower Extremity of the Musculus Brachialis, and upper Extremity of the Supinator Longus, giving Branches to these and the neighbouring Muscles.

Having reached the Extremity of the Radius, it divides into two, or rather sends off a large Branch, which passes between the Radius and Supinator Longus, below the middle of the Bone, where it runs in between the Supinator Longus and Radialis.

This Branch accompanies the external Radial Artery, near the Integuments; and, having got to the lower Part of the Radius, it is distributed into three Branches, to the convex lateral Parts of three Fingers and an half.

One Branch goes to the internal lateral Part of the Thumb, and to the Integuments. The second is divided into two for

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the external lateral Part of the Thumb, and anterior lateral Part of the Index; giving Filaments in its Passage to the Integuments of the Metacarpal Bones. The third Branch is divided into several lesser Ramifications, which go to the posterior lateral Parts of the Index, to both Sides of the middle Finger, and to the anterior lateral Part of the Ring-finger. Through all this Course this Branch supplies the Integuments, and interosseous Muscles.

The Trunk, or largest Branch, of the Radial Nerve passes between the upper Extremity of the Radius and Musculus Supinator Brevis; and in its Passage supplies this Muscle, the Anconæus minimus, Supinator longus, and Radialis externus.

Afterwards it is lost in the Extensor Digitorum communis, and in the Muscles of the Carpus and Thumb, having first communicated with a Branch of the Musculo-cutaneous Nerve.

### NERVUS AXILLARIS.

The Axillary or Articular Nerve arises from the last two Cervical Pairs, and sometimes seems to be no more than a large Branch of the Nervus Radialis. It runs in the Hollow of the Axilla, behind the Head of the Os Humeri, between the Musculus Teres major & minor; and turns from within outward and backward, round the Neck of that Bone, running between the Articulation and the upper Extremity of the Anconæus Longus, to the Deltoides.

It is divided into several Branches, which go mostly to the upper and lower Parts of the Deltoides, upon which they are ramified, supplying in their Passage the Subscapularis, the upper Extremity of the Anconæus longus, Teres major and minor, and Supra-spinatus. It likewise gives some Nerves to the Latissimus Dorsi, and Anconæus Externus.

### NERVI DORSALES, SIVE COSTALES.

The Dorsal or Costal Nerves consist of twelve Pairs, and they deserve more justly to be called Intercostales, than the great Sympathetic Nerve, to which that Name has been commonly given.

They have this in common with each other, that as soon as they leave the Vertebrae of the Back, before they begin to accompany the Ribs, they send out two Filaments anteriorly, which communicate with the great Sympathetic Nerve, and several Filaments backward to the Vertebral, and other Muscles.

Each of these twelve Pairs is numbered from the Vertebra, under which it goes out; thus the first Pair is that which passes under the first Vertebra of the Back, and so of the rest.

The first Pair enters the Composition of the Nervi Brachiales, and together with the second Pair sends off the Rami Thoracici.

The seven superior Pairs run along the under Sides of the true Ribs, all the Way to the Sternum; being distributed to the Intercostal Muscles, which they perforate likewise from within outward, to go to the Serratus major, Pectorales, and external Integuments.

The seventh Pair, having reached the cartilaginous Portion of the seventh true Rib, runs down to the broad Muscle of the Abdomen, to which it is distributed.

The lowest five Pairs leave the Extremities of the false Ribs, and go to the Muscles of the Abdomen.

The eleventh Pair gives, likewise, some Filaments to the Diaphragm; and then runs in between the Musculi Transversales and the Peritonæum.

The twelfth is distributed to the Transversales and Obliqui Interni.

All these Nerves send numerous Ramifications through the Muscles to the Integuments which form the cutaneous Nerves of the Thorax, of the upper two Regions of the Abdomen, and of the superior Portion of the Loins.

### NERVI LUMBARES.

All the five Pairs of Lumbar Nerves send Filaments backward to the Vertebral Muscles; communicate with each other, and with the great Sympathetic, on each Side; and are covered by the Psoas Muscle.

The Branches which communicate with the great Sympathetic Nerve are long, because they advance forward a considerable Way on the Bodies of the Vertebrae Lumbares.

The Lumbar Nerves are denominated from the Vertebrae under which they pass.

### FIRST PAIR OF LUMBAR NERVES.

The first Pair passes between the first and second Vertebrae of the Loins, and each receives a communicating Branch from the last Dorsal Pair, and gives out another to the second Lumbar Pair, or to a Branch of it.

Each Trunk communicates with the great Sympathetic, by a pretty long Branch; and afterwards gives out three Branches,



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one posterior, and two anterior, of which one is external and large, the other internal and small.

The posterior Branch perforates the *Musculus Quadratus Lumborum*, and runs in between the back Parts of the oblique Muscles of the Abdomen, pierces the *Obliquus externus*, and is distributed to the Skin, all the Way to the Clunes. This Branch supplies, also, the Vertebral Muscles, and *Sacro-lumbaris*.

The external and anterior Branch perforates the upper Extremity of the *Musculus Psoas* obliquely outward, passes over the *Quadratus Lumborum*, and runs along the Crista of the *Os Ilium*, to the anterior Spine of that Bone.

It gives Filaments to the abdominal Muscles, and supplies the *Fascia Lata*, neighbouring Integuments, and those of the anterior Part of the Outside of the Thigh, and the inguinal Glands.

The internal anterior Branch perforates the *Psoas* almost at the same Place with the former, but a little more forward; and then passes over the *Musculus Iliacus*, to the Beginning of the *Ligamentum Fallopii*, where it unites with the other anterior Branch; and by this Union forms a Nerve, which runs along that Ligament, and along the Inside of the *Aponeurosis* of the *Obliquus Externus*, all the Way to the Opening, commonly called the Ring of that Muscle.

This Nerve goes out by that Opening, and afterwards divides into several cutaneous Filaments, which go to the Pubis and Integuments of the Parts of Generation in both Sexes. It likewise supplies the spermatic Ropes, and those vascular Ropes, falsely called the round Ligaments.

Besides these Branches, the Trunk of this first Pair, near its Union with the second, sends out two small Branches, closely united together, which run down behind the *Psoas* Muscle, over one tendinous Inflection of the small Muscle of the Diaphragm, in the third Vertebra of the Loins, and communicate with the great sympathetic Nerve.

These two Branches accompany each other in this manner, all the Way to the *Ligamentum Fallopii*, whence one goes to the Testicles along with the spermatic Vessels; the other passes under the Ligament to the Skin and Glands of the Inguen.

At the Place of this Division, the Trunk sends a Branch directly downward, which joins the second Lumbar Pair, or rather a Branch of it; and afterwards contributes to the Formation of the large Rope, termed *Nervus Cruralis*.

### SECOND PAIR OF LUMBAR NERVES.

The Trunks of the second Pair of Lumbar Nerves go out between the second and third Vertebra of the Loins; and, having communicated with the first Pair, and with the great sympathetic Nerve, each Trunk gives off several small Filaments to the neighbouring Parts of the *Musculus Psoas*, and a large Branch backward, to the *Quadratus Lumborum*, *Sacro-lumbaris*, *Longissimus Dorsi*, and neighbouring Vertebral Muscles; the *Quadratus* having first been perforated by it.

Afterwards the Trunk sends out a small Branch, which, near its Origin, joins a descending Branch of the first Pair already mentioned. Being thus strengthened, it perforates the Head of the *Psoas*, runs along that whole Muscle to the Fissure of the *Obliquus externus*, and is distributed to the Inguinal Glands, to the Fat and Scrotum in Males, and, in Females, to the Labia.

The same Trunk sends out two other Branches, which accompany each other, and, likewise, a small Branch between the Origins of these two, which goes to the upper Part of the *Psoas*. These two Branches perforate the *Psoas* in different Places, and afterwards, continuing still near each other, they pass under the upper Part of the *Ligamentum Fallopii*, and so go out of the Abdomen.

As they go out, they unite, and form one Nerve, which is distributed by several Branches to the Inguinal Glands, the *Aponeurosis Cruralis*, and Integuments of the fore Part of the Thigh, all the Way to the Knee.

Some of these Branches unite with those of the *Nervus Cruralis*; some are distributed to the Integuments on the Inside of the Thigh; and one accompanies the Crural Artery, over one Branch of which it runs in Form of an Arch.

This Trunk sends out sometimes another Branch, which unites with one from the third, and one from the fourth Pairs, into a particular Rope, which, passing to the Obturator Muscles, is named *Nervus Obturator*.

Afterwards this Trunk runs downward, and, having given a Branch to the middle Portion of the *Psoas* Muscle, joins the Trunk of the third Pair, and contributes to the Formation of the Crural Nerve.

### THIRD PAIR OF LUMBAR NERVES.

The Trunks of the third Pair of Lumbar Nerves go out between the third and fourth Vertebrae of the Loins. Each Trunk

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communicates, above, with the second Pair; before, with the great sympathetic Nerve; and, below, joins the Trunk of the fourth Pair. It sends a considerable Branch backward, between the transverse Apophyses, which goes to the Vertebral and other neighbouring Muscles.

Before it unites with the fourth Pair, it sends a considerable Branch downward, and, having received a communicating Branch from the second Pair, unites with one from the fourth Pair, and forms the Obturator Nerve.

It detaches, likewise, another large Branch, which runs down between the *Musculus Iliacus*, and *Psoas*, and joins the Crural Rope on the Outside of the lower Part of the Muscle last named. It may be reckoned a sort of *Nervus Accessorius* to the Cruralis.

As the Trunk runs along the *Psoas*, it gives off Filaments both to that, and to the Iliac Muscle; and sends down a Branch, which passes under the *Ligamentum Fallopii* to the *Musculus Pectineus*; and, lastly, having joined a Branch of the second Pair, it unites with the fourth Pair, to form the *Nervus Cruralis*.

### FOURTH PAIR OF LUMBAR NERVES.

The Trunks of the fourth Pair of Lumbar Nerves go out between the fourth and fifth Vertebrae of the Loins; and each communicates, above, with the third Pair, and, before, with the great sympathetic Nerve, ofentimes by two Filaments.

Each Trunk sends Branches backwards, to the Vertebral and neighbouring Muscles; and afterwards completes the Formation of the *Nervus Cruralis*, together with the other Portions of the Lumbar Nerves.

From the same Place it sends off a considerable Branch, which, joining a Branch from the third Pair, and one from the second, forms the *Nervus Obturator*.

The remaining Part of the Trunk joins the fifth Pair of Lumbar Nerves.

### NERVUS OBTURATOR.

The Obturator Nerve, formed in the Manner already described, runs along the inner lateral Part of the *Psoas* Muscle to the Pelvis, and goes out of the Abdomen, at the upper Part of the Obturator Muscles, and Foramen Ovale of the *Os Innominatum*.

As it goes out, it supplies the *Musculi Obturatores*, and *Pectineus*, and is afterwards distributed by three principal Branches to all the Portions of the Triceps; and sends other Branches between these Portions, to the *Gracilis Internus*.

### FIFTH PAIR OF LUMBAR NERVES.

The fifth Pair of Lumbar Nerves passes between the last Vertebra of the Loins, and *Os Sacrum*; each Trunk communicating, above, with the fourth Pair, and, before, with the great sympathetic Nerve. It sends Branches backward to the Vertebral and neighbouring Muscles, and even to the Glutei; and, as it bends forwards, it sends a small Branches to the Crural Nerve.

Afterwards the Trunk runs down on the Symphysis of the *Os Sacrum* with the *Os Ilium*, enters the Pelvis, and, having received a communicating Branch from the fourth Lumbar Pair, joins the *Nervi Sacri*, with which it forms a Plexus, that produces the *Nervus Sciaticus*, the largest Nerve of the human Body, which is distributed to the lower Extremity.

### NERVI SACRI.

The *Nervi Sacri* are those which come from the *Os Sacrum*, the principal of which pass through the anterior Holes of that Bone, the rest through the lateral Notches, at the Extremity of that Bone, and in the *Os Coccygis*.

These Nerves are reckoned likewise by Pairs, of which there are commonly six; four passing through the great anterior Holes, and two below them. This Number is increased, when there are five Pairs of great Holes, and some Filaments pass, likewise, through the posterior Holes.

The first Pair is very large; all the rest diminish gradually, and the last is very small.

Those which pass through the great Holes, unite together as soon as they enter the Pelvis; and, together with the fifth Lumbar Pair, form the great Plexus for the Sciatic Nerve. They likewise send Branches backward, through the Membranes of the posterior Holes, to the neighbouring Integuments.

The Trunks, thus united, and interwoven with each other, give off other small Branches, besides the great sciatic Trunk; and it will be proper to describe the most considerable of these Branches, together with the inferior *Nervi Sacri*, before we begin with the Ramifications of the great Sciaticus.

This Disposition resembles very much that of the last four Cervical Pairs, and first Dorsalis, which are not only interwoven together,

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together, to form the Brachial Nerves, but likewise send off many Branches from their Origin.

From this Intertexture of the Nervi Sacri, especially from the second Pair, a Branch goes out to the Vesiculæ Seminales, Prostate Gland, Uterus, Tubæ Fallopiæ, &c. Another Branch goes principally from the fourth Pair, partly to Places just named, and partly to the Bladder, and Intestinum Rectum.

The same Intertexture, and principally the third Pair, united in some Subjects with the second, in others with the fourth, and sometimes with both, produces a Branch, which goes out of the Pelvis over the Ligamentum Fallopii, passes on the Inside of the Tuberosity, and inner Part of the Os Ischium; and is distributed to the Corpus Cavernosum, to the Muscles thereof in both Sexes, to the neighbouring Parts of Generation, and to the Sphincters of the Anus.

The last two Pairs of Nervi Sacri are very small. That which goes out immediately below the great Foramina, runs from behind forward, on each Side, between the Extremity of the Os Sacrum, and Ligament of the Os Coccygis; being distributed chiefly to the Muscles of the Anus, and neighbouring Integuments.

The next, or last Pair of Nervi Sacri, runs down almost directly from the Extremity of the Canal of the Os Sacrum, and is likewise distributed to the Anus and Integuments.

From the Extremity of the Plexus of all the Nervi Sacri, immediately before the Formation of the great Sciatic Rope, a Branch goes out to the Glutæus Medius and Minimus. Another goes out posteriorly, which is distributed partly to the Muscles of the Corpus Cavernosum, and partly to the Glutæus Maximus, and neighbouring Integuments, by several Filaments, which reach as far as the Ham.

#### NERVUS CRURALIS.

The crural Nerve, formed by the complicated Union of the Trunks of the first, second, and third Pairs of Lumbar Nerves, and of a Portion of the fourth, sometimes increased by a Branch of the fifth Pair, passes under the Ligamentum Fallopii; and goes out of the Abdomen, on the Outside of the Crural Artery, which lies between this Nerve and the Crural Vein.

As it goes out, it is divided into several Branches, some of which are detached from its Union with the Ramus Accessorius of the third Pair, but the greatest Number goes from the Trunk itself.

The Branches which go from its Union with the Nervus Accessorius, run down on the fore Side of the Thigh; and, having reached the Middle of the Musculus Sartorius, they follow its Course, and are spent on the Integuments of the fore and inner Parts of the Knee.

The most anterior Branch passes on the Fascia Lata, or Aponeurosis Cruralis, forming cutaneous Nerves all the Way to the Knee.

The internal Branch runs along the Tendon of the Sartorius, in the same Manner, all the Way to its Insertion in the Tibia, where they are spent on the Integuments; and some of them go to the inner Ankle, and convex Part of the Foot.

Afterwards the crural Rope divides into a great Number of Branches, which, in their Course downward, are distributed to the anterior Muscles, the Rectus, Vasti, and Cruralis; giving Ramifications in their Passage to the Triceps, Sartorius, Gracilis Internus, and Semi-tendinosus.

It likewise gives off a Branch, which runs down interiorly between the Sartorius and Triceps, in the same Course with the Crural Vessels, as far as the Middle of the Thigh.

Afterwards it runs near the Integuments, behind the Sartorius, to which it gives several Filaments, and continues this Course all the Way to the Insertion of that Muscle.

Having reached the Tibia, it lies near the Vena Saphena, and follows the same Course with it, as far as the inner Ankle, where it detaches a great Number of cutaneous Filaments.

Lastly, it ends by Ramifications, on the inner and upper Part of the Foot; where one of the most anterior Ramifications adheres very closely to the Saphena.

#### NERVUS SCIATICUS.

The great sciatic Nerve, being formed, as has been already said, or, as it sometimes happens, from the last two Pairs of the Lumbares, and first three Pairs of the Sacri, runs obliquely backward, under the great Sinus of the Os Ilium, and under the Musculus Pyriformis.

It goes this Way, out of the Pelvis, passing between the Pyriformis, and superior Gemellus; and then running on the fore Side of the first of these Muscles, and presently afterwards behind the two Gemelli, and Quadratus Femoris, it gives Filaments to each of them.

It runs down, in the next Place, between the Tuberculum Ischii, and the great Trochanter, along the inner and posterior Part of the Thigh, between the Musculus Biceps, and Semi-

nervosus, as far as the Hollow of the Poples, a little nearer to the internal Condyle, than to the external, giving Ramifications in its Passage to all these Muscles, and to the Triceps, and diminishing gradually in Size, as it descends.

As it goes out of the Pelvis, it gives out a Branch, which passes between the Portions of the Ligamentum Sciaticum, to the Anus, Perinæum, Parts of Generation, &c. And this Branch joins a Ramification, from the third Pair of the Nervi Sacri, which goes to the same Parts.

As it passes between the Tuberosity of the Ischium, and the great Trochanter, it produces two Branches, one of which is spent on the Glutæus Maximus; the other divides into two, for the other two Glutæi.

Below the great Trochanter, where it may be termed Nervus Sciatico-cruralis, it sends back a Branch, which runs down with the sciatic Vein, and is distributed to the Integuments, as low as the Middle of the Calf of the Leg, and sometimes lower toward the outer Ankle.

The sciatic Nerve, having reached the Ham, is commonly called Nervus Popliteus, and begins to be divided into two Branches, which run, at first, very close to each other, between the Extremities of the Biceps, and Semi-nervosus; and afterwards separate gradually, passing behind the Condyles of the Os Femoris, between the superior Extremities of the Gastrocnemii.

The innermost of these two Branches is very large; the outermost not so large. They are distributed to the whole Leg, and through this Course, they may be termed Nervi Sciatico-tibiales.

The large Branch of the Sciatico-cruralis, or Cruralis Internus, which may likewise be termed Popliteus Internus, runs down behind the Musculus Popliteus, on one Side of the Tibialis Gracilis, commonly called Plantaris; and between the two Gastrocnemii.

Afterwards it pierces the upper Extremity of the Solcus, and runs down between this Muscle, and the great Flexors of the Toes, to the lower Extremity of the Tibia, near the inner Ankle.

In its Passage, it sends small Branches to the Joint of the Knee, to the Gastrocnemius Internus, to the other Muscles last-mentioned, and to the Integuments all the Way down.

Besides these small Branches, it sends off another more considerable Branch towards its upper Part; from which one Filament goes to the Tibialis Posticus; another perforates the Interosseous Ligament, and is distributed to the upper Part of the Tibialis Anticus.

Soon after this, it detaches, externally, a long Branch, which runs down on the back Side of the Leg, between the Integuments, and external Gastrocnemius, on one Side of the Vena Sciatica, or Saphena externa.

This long Ramification joins a Branch of the Sciaticus externus minor, sends off Filaments toward each Side, through its whole Course; and having supplied the Tendon of *Achilles*, passes behind, and under the outer Ankle.

This Branch passes afterwards on the Outside of the Foot, where it is distributed to the Integuments, and neighbouring Muscles, and terminates on both Sides of the little Toe; and on the Outside of the next Toe.

The large sciatic Branch, or Sciatico-tibialis, having given off these different Ramifications, passes behind the inner Ankle, through a particular annular Ligament, and runs downward to the great lateral Sinus of the Os Calcis, passing first between that Bone, and the Musculus Thenar; and then between it, and the posterior Insertion of the Flexor Digitorum Brevis.

At this Place, having first sent small Filaments to the neighbouring Parts, it divides into two Branches, named Nervi Plantares, one internal and large, the other external.

The Nervus Plantaris Internus is distributed to the Foot, much in the same manner as the Radial Nerve to the Hand. It runs first along the Inside of the Sole of the Foot, and sends Filaments to the Thenar, Flexor Digitorum Brevis; and to the Musculus Lumbricalium Accessorius.

Afterwards it sends out four Branches to the lateral Concave, or lower Parts of the first three Toes; and to the nearest lateral Part of the fourth Toe. The first Branch goes to the Inside of the great Toe. The second divides into two, for the corresponding Sides of the great Toe, and the second. The third, being bifurcated in the same Manner, goes to the second and third Toes; and the fourth, to the third and fourth Toes.

These Nerves communicate on each Side, at the Extremities of the Toes; and, in their Passage, give Filaments to the Musculi Lumbricales, Interossei, and the neighbouring Ligaments and Integuments.

The external Plantaris passes between the Musculus Lumbricalium, Accessorius, and the Flexor Digitorum Brevis, giving Filaments to these Muscles, to the Interossei, and to the Hypothenar Minimi Digiti; and afterwards it divides into two Branches.

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The first Branch runs in the Interstice between the two last Toes; and being divided, goes to the corresponding lateral Parts of both. The other Branch goes to the inferior, external, lateral Part of the little Toe.

During this Course, the external Nervus Plantaris supplies the Aponeurosis Plantaris and the Ligaments and Integuments, in the same manner as the rest.

The small sciatic Branch, or Sciaticus externus, called, likewise, Sciatico-peronæus, runs outward over the Head of the Fibula, and is divided into several Branches, of which three or four are considerable, one posterior, one superior and anterior, one internal and anterior, and one external and anterior.

The posterior Branch runs down between the Integuments and the Fibula, as low as the outer Ankle, and terminates in the Outside of the Foot, having detached several cutaneous Filaments in its Passage.

About the Middle of the Fibula, it sends out a small Branch, which joins another Branch, from the large or tibial Branch of the sciatic Nerve; and is distributed together with it, as was before observed.

The posterior Branch of the small sciatic Branch, having reached the outer Ankle, runs up a little Way on the Foot, towards the Root of the fourth Toe, where it divides into two smaller Ramifications.

One of these Ramifications divides into two others, for the corresponding lateral Parts of the third and fourth Toes; the other goes to the external, lateral Part of the fourth Toe, where it joins a Branch of the external Nervus Plantaris, which is distributed to the last two Toes.

After having sent off the posterior Branch, the small sciatic Branch runs outward over the Head of the Fibula; and, having given some Filaments to the Gastrocnemii and Soleus, it runs across the upper Extremity of the Peronæus Posticus, from behind forward.

Afterward it passes between the Bone and the Muscle last named, and sends several Filaments forward to the neighbouring Parts; and then produces three or four Branches already mentioned, which are distributed in the following Manner.

The superior and anterior Branch runs a little transversely between the Head of the Fibula, and the upper Extremity of the Extensor Digitorum longus; and, having given Filaments to this Muscle, and to the Extensor Pollicis longus, it is distributed to the upper Extremity of the Tibialis Anticus, giving Filaments to the neighbouring Integuments.

The inner anterior Branch runs down on the fore Side of the interosseous Ligament, between the Extensor Pollicis Longus, and Tibialis Anticus, giving Filaments to each of these Muscles.

It passes afterwards under the annular Ligament of the Extensor Muscles, behind the Extensor Pollicis, to the upper Part of the Foot, under the Extensor Digitorum Brevis. In its Passage it gives Filaments to that Muscle, and to the first superior Interossei.

Having communicated, by a Filament, with the external anterior Branch, it is spent on the corresponding lateral Parts of the first two Toes.

The external anterior Branch of the small sciatic Branch runs down betwixt the Fibula and the Peronæus Longus, and then between the Peronæus Medius, and Extensor Digitorum Longus; to which, and to the neighbouring Ligaments, it gives Filaments all the Way to the upper Side of the Foot.

In this Course, having run along about two third Parts of the Leg; and having reached the great, annular Ligament, it runs forward, and toward the Integuments, being there divided into two Portions; one of which goes to the great Toe; the other to the last Toes.

The first Portion of this Branch gives a Nerve to the internal, lateral Part of the great Toe, and is afterwards distributed to the neighbouring Integuments, on the convex Side of the Foot; and, lastly, to the corresponding lateral Parts of the great and second Toes.

The other Portion, which goes to the last Toes, is, first of all, joined to a Filament of the first Portion; and afterwards to another, from the internal anterior Branch.

After this Union, they are presently divided, and distributed to the last two Toes, and to the Integuments. One Filament, arising from this Union, joins a Branch belonging to the great sciatic Branch.

#### NERVI SYMPATHETICI MAXIMI, VULGO INTERCOSTALES.

It is the common Opinion, that each of the great sympathetic Nerves begins by a Filament from the sixth Pair, belonging to the Medulla Oblongata, and by two Filaments from the fifth Pair; and that these Filaments, at first, compose a very small Nerve, which runs backward to go out of the Cranium, through the bony Canal of the Apophysis Petrosa, and increases gradually in its Course downward.

But, having examined attentively the pretended Origin of these

Filaments, they seem to me, rather to ascend from the Basis of the Cranium, with the internal Carotid; and to run from behind forward, to join the fifth and sixth Pairs; and I find the Angle formed by this Union to be turned forward; and, withal, so very acute, that these Nerves cannot be looked upon as Recurrents.

As I have ever found this Angle disposed the same Way, in all the Subjects which I have dissected; I have always been of Opinion, that what had been taken for the original Root, and descending Stem, of the Nerve called Intercostalis, was really an ascending Branch thereof; which, as it enters the Cranium, is divided into Filaments, by which it becomes closely united with the two Pairs already named.

The Observation, communicated to the Royal Academy, by Dr. *Petit*, concerning the different Size of the Portions of the sixth Pair, appears to be indisputable, he having found this Nerve larger on the fore Part, between the Filament of the supposed Intercostal, and the Orbit, than on the back Part, between the same Filament, and the Origin of the sixth Pair; and his Experiments, concerning the real Co-operation of this Nerve in Vision, farther confirm his Observation.

These Nerves, as I have said, are commonly called Intercostales, though this Name does not agree, either with their Situation, or with the Extent of their Course. Therefore, I believe, the Name of Sympathetici Majores, or Maximi, will be more proper, because of their frequent Communications with almost all the other principal Nerves of the Body.

The Situation of these two Nerves, in general, is on the lateral Parts of the whole twenty-four Vertebrae, immediately before the Roots of the transverse Apophyses; and, likewise, on the lateral Parts of the Inside of the Os Sacrum.

Through this large Extent, they appear like two Ropes divided, and, in a manner, intersected, at different Distances, by a great Number of Gangliform Tubercles; by means of which, they communicate backward, with the Ganglions of the Medulla Spinalis, by short collateral Filaments; and produce, forward, all their particular Ramifications.

These Ganglions differ in Size, Colour, and Consistence; and may be looked upon as so many Origins, or Germinalia, dispersed through this great Pair of Nerves; and, consequently, as so many little Brains.

We shall consider these Ganglions in the same Manner as we did the Vertebral Nerves, as divided into Cervicalia, Dorsalia, Lumbaria, and Sacra, without pretending to determine the Number contained in each Class.

The first Cervical Ganglion is the most considerable in Size, but not in Consistence, representing a soft oblong Tumor, of the Figure of an Olive, and situated longitudinally before the Root of the transverse Apophyses of the first three Vertebrae, immediately behind the Pharynx.

It produces, from its superior Extremity, a small soft Nerve, which runs up with the internal Carotid Artery, of the same Side, into the bony Canal of the Apophysis Petrosa.

At its Entry into this Canal, it is divided into several plexiform Filaments, which, at that Place, surround the Carotid Artery, and accompany all the Incurvations thereof, till it enters the Cranium. They adhere very closely to the Artery; and both they, and their Trunks, are very tender, having oftentimes neither the Colour nor Consistence of nervous Filaments; for they are redish, and sometimes, in a manner, mucilaginous. We must not mistake, for these plexiform Filaments, some lacerated Portions of the Dura Mater, which line this bony Canal.

Among these Filaments, there are two or three principal ones, which appear to be only a simple Division of the Trunk; and which, as they enter the Cranium, unite again into a small Trunk, more solid than the former. The small superior Trunk is immediately afterwards divided into Filaments, one of which is united to the Nerve of the sixth Pair; the rest join the fifth Pair, as has been already said. The Filament, which goes to the sixth Pair, is commonly single; but I have sometimes found it double, or divided all the Way to the Union.

Immediately below the inferior Orifice of the bony Canal of the Apophysis Petrosa, and thence all the Way down to the occipital Condyle, on the same Side, or to the Top of the first Ganglion, the small ascending Trunk is a little stronger, and not altogether so soft, as it is in the Canal.

The first Cervical Ganglion is of a middle Consistence, and adheres very closely to the Trunk of the eighth Pair, or Nervus Sympatheticus Medius, by numerous, small, communicating Filaments.

It likewise communicates on both Sides, by short Branches, with the ninth and tenth Pairs of Nerves, of the Medulla Oblongata; with the first, second, and sometimes the third Cervical Pairs; and also with that Branch, which the eighth Pair sends to the Pharynx.

In its Passage, it gives Filaments to the Pharynx, to the small neighbouring Muscles, and to the Carotid Artery, from which it receives very fine capillary Vessels, which are plainly visible in Inflammation.



Inflammations; and seem to form a curious Net-work, with the nervous Filaments.

Lastly, it sends downward a very long nervous Filament, which runs in the Thorax, and joins other Filaments, of which hereafter.

This Ganglion terminates below, in a small Rope or Trunk, which runs down on the anterior vertebral Muscles of the Neck, in the same Course with the eighth Pair, and the Carotid Artery of the same Side; to both which it is connected by membranous Expansions, as by a kind of Vagina, all the Way to the last Vertebra of the Neck. In this Course, the descending Trunk communicates on the outer, or back Side, with the third, fourth, fifth, and often with the sixth Cervical Pairs, by short Branches, more or less oblique; by which it seems to be gradually increased in Size.

At the Places of these Communications we observe small Ganglions in this Trunk; which, however, in some Subjects, are scarcely perceptible; and it is very difficult to determine, by which Extremity these Branches arise, and by which they are inserted.

On the inner, or fore Side, this Trunk gives off two or three Filaments, which run obliquely downward, toward the Aspera Arteria, into the Thorax. Another Filament goes off, below the first Cervical Ganglion, which passes on the fore Side of the Carotid Artery, and joins a Filament of the eighth Pair, with which it forms a small distinct Rope.

This small Rope runs before the Subclavian Vein, and, lower down, joins another Filament, which arises behind the Subclavian Artery, and runs down in the Manner hereafter to be explained, sending off Filaments in its Passage to the Oesophagus, and neighbouring Parts.

The Trunk, having reached as far as the last Vertebra of the Neck, forms a small Ganglion, called Ganglion Cervicale infimum, which is pretty solid, and sometimes double.

Presently afterwards, the Trunk turns from within outward, towards the Root of the first Rib, behind the Subclavian Artery, where it forms a pretty large Ganglion, which is the first of the Thoracica, or Dorsalia.

These two last-mentioned Ganglions are very near each other, being separated only by a very short Portion of the Trunk, which is sometimes double, and forms a kind of small Plexus, behind the Subclavian Artery.

From the fore Part of the lowest Cervical Ganglion, a small nervous Rope goes out, which runs before the Subclavian Artery, bends immediately downward, and ends in the Top of the first Dorsal Ganglion, forming, by this Course, a sort of nervous Arch, which incloses the Subclavian Artery.

These two Ganglions communicate by short Branches, more or less oblique, with the neighbouring Vertebral Nerves, that is, with the sixth and seventh Cervical Pairs; and sometimes with the fourth, by a long descending Filament. The first Dorsal Ganglion, communicates, likewise, with the first Dorsal Pair of Nerves.

The lower Cervical, and sometimes the first Dorsal Ganglion, sends down a communicating Filament, to the recurrent Nerve of the eighth Pair; and from this Union a Filament is detached, which passes behind the common Trunk of the Axillary and Carotid Arteries, joins another Filament from the eighth Pair, and contributes to the Formation of the Plexus Pulmonaris.

From the small plexiform Portion of the Trunk, which joins the last Cervical, and first Dorsal Ganglions, behind the Subclavian Artery, a particular Filament goes out, which unites the small Trunk, common to the great Sympatheticus, and to the eighth Pair, and runs down before the Subclavian Artery; and, together with this Filament, composes the Plexus Cardiacus.

On the Right Side, this Filament runs down to the Right Ventricle of the Heart, and then between the Aorta, and Arteria Pulmonaris, where it communicates with some Filaments, from the Left Recurrent of the eighth Pair.

On the Left Side, a Filament goes out from the last Cervical, and another from the first Dorsal, or Thoracic Ganglion, which unite together, to form a kind of Arch; in which, however, nothing is contained.

From this Arch, a Nerve goes out, which runs down between the Curvature of the Aorta, and the Left Branch of the pulmonary Artery, where it communicates with a Filament of the eighth Pair, and forms a gangliform Plexus, with the like communicating and united Filaments from the Right Side.

From this gangliform Plexus, which may be looked upon as the Origin of the Plexus Cardiacus Superior, a great Number of Filaments run down, over the Trunks of the great Blood-vessels, and over the Auricles and Ventricles of the Heart.

The chief of these Filaments run in the cellular Substance, behind the Aorta, or between that and the Trunk of the pulmonary Artery, where they are divided into a great many small Nerves, which run before and behind the Aorta, to the Basis and Auricles of the Heart.

The Filaments that run down from the Trunk itself, between the first and last Cervical Ganglions, are united and interwoven in the Thorax with the Filaments common to the last Cervical and first Dorsal Ganglions; and thus contribute to the Formation of the Plexus Cardiacus, and some Part of the Plexus Pulmonaris.

The long Filament of the first Cervical Ganglion contributes, likewise, to these Plexus. It runs along the Inside of the Trunk, and then unites with the Filaments of the last Cervical Ganglion, the first Dorsal Ganglion, and the great Recurrent Nerve.

From all these Conjunctions, a particular Nerve is formed in some Subjects, which meets like a Rope from the other Side behind the Aorta; and forms, together with that, a kind of subordinate Trunk about a Finger's-breadth in Length, which sends out, on all Sides, several Filaments, that are distributed to the neighbouring Parts.

From the first Dorsal Ganglion, the Trunk runs down on the fore Side of the Heads and Necks of all the Ribs, over the articular Ligaments, by which they are ty'd to the Vertebrae. On the last false Rib, it bends a little toward the Bodies of the Vertebrae.

In this Course, the Trunk forms a small Ganglion between each Rib, and communicates backward by two short Filaments, more or less oblique, with the corresponding Dorsal, or Costal Nerves.

Of these two communicating Filaments, one is more oblique, and often smaller than the other; one runs backward, towards the nearest Ganglion of the Costal Nerve; the other runs forward on the Head of the Rib, to the Trunk of the great Sympathetic Nerve; and, for this Reason, one of these Filaments appears to be more anterior, and longer, than the other.

Having reached about Half-way between its Entry into the Thorax and the last Vertebra of the Back, this Trunk sends commonly five Branches obliquely downward on the lateral, and a little toward the anterior Part of the Bodies of the Vertebrae.

The first four Branches come commonly from the fifth, sixth, seventh, and eighth Thoracic Ganglions, and the fifth arises from several of the following Ganglions. The first is the longest, and the last the thickest.

All these Branches approach each other gradually in their Descent, as far as the last Vertebra of the Back, where they unite into one large, short, collateral Rope, which pierces the upper lateral Part of the lower Muscle of the Diaphragm, sending some Filaments to the upper Side.

Having got below the Diaphragm, and given off some Filaments to the lower Side of that Muscle, this great Trunk produces, behind the Glandulae Renales, a kind of irregular Ganglion, of a curve oblong Figure, called, *Ganglion five Plexus Semilunaris*.

The convex Side of this semilunar Plexus, or Ganglion, is turned obliquely backward and downward; the concave Side forward and upward, one of its Cornua being turned upward, the other forward; so that the inferior Cornua of the two Ganglions on each Side are turned toward each other.

These Ganglions, on each Side, communicate together, behind the Stomach on the Coeliac Artery, and likewise with the eighth Pair, or Nervus Sympatheticus Medius, principally by means of the Nervus Stomachicus posterior, belonging to that Pair.

From the reciprocal Communication of these two Semilunar Ganglions, a kind of middle Plexus is formed, which partly surrounds the Coeliac Artery, and is partly spent on the Mesocolon.

The Semilunar Ganglion, on the Right Side, together with a large Portion of the Plexus Coeliacus, and some Filaments of the Plexus Stomachicus, forms a particular Intertexture, called Plexus Hepaticus.

This hepatic Plexus, having communicated with some Filaments of the diaphragmatic Nerve, produces several Filaments, which surround the hepatic Artery, and Vena Portae, in form of a reticular Vagina, and accompany the Branches of these Vessels thro' the whole Substance of the Liver. The hepatic Plexus supplies, likewise, the Vesicula Fellea, Ductus Biliaris, Duodenum, Pancreas, and Glandulae Renales.

The Left Semilunar Ganglion, formed by the anterior or collateral Trunk of the Left Side, produces several Branches, which form the Plexus Splenicus, nearly in the same manner as has been already mentioned.

This Plexus Splenicus, having communicated with the Hepaticus, and, by the Intervention of the Plexus Stomachicus, with the eighth Pair, surrounds the Splenic Artery, supplies the Pancreas, and is distributed to the Spleen.

This Left Ganglion is sometimes accompany'd by another, which gives Filaments to the Spleen.

Each semilunar Ganglion sends Branches from its convex Side, which, being joined to the Filaments of the first Lumbar Ganglions, form an Intertexture, called Plexus Renalis, which surrounds the Renal Artery; is distributed to the Kidneys, and Glandulae Renales; and sends out a Filament, which accompanies the spermatic Vessels.

This



This Renal Plexus concurs, likewise, with the Semilunar Ganglion in the Formation of the great mesenteric Plexus; and communicates, by several Filaments, with the Plexus Coronarius Stomachicus.

The Right Renal Plexus communicates particularly with the Plexus Hepaticus, and the Left with the Splenicus; and each of them, by two Filaments, with the true Trunk on the Side of the first two Vertebrae of the Loins. This Portion of the principal Trunk is commonly called the inferior Rope of the intercostal Nerve.

The Right and Left Semilunar Ganglions send nervous Fasciculi to each other, which, by a particular Intertexture, form a kind of flat Ganglion, or Plexus, immediately under the Diaphragm, before the Articulation of the last Vertebra of the Back with the first of the Loins.

From this plexiform Union, called commonly Plexus Solaris, several Filaments are detached in a radiated manner to the Mesocolon, and Mesentery; and some of them go, likewise, to the Diaphragm. A great Number of other Filaments go, likewise, from it, which, with the Ramifications thereof, form a kind of nervous Capsula, or Vagina, round the superior mesenteric Artery, and round all its Ramifications on the Intestines, and supply the mesenteric Glands. This is termed Plexus Mesentericus superior, which comes principally from the Filaments of the Plexus Hepaticus and Renalis of the Right Semilunar Ganglion.

The superior mesenteric Plexus sends down from its Origin, along the Aorta, and behind the descending Portion of the Mesocolon between the superior and inferior mesenteric Arteries, several Filaments, or nervous Fasciculi, differently interwoven, from which a nervous Vagina is, likewise, formed, that surrounds the inferior mesenteric Artery, and its Ramifications on the Intestines. This has been named Plexus Mesentericus Inferior.

The descending nervous Fasciculi, between the two mesenteric Arteries, which may be named Mesenterici Posteriores, receive some communicating Filaments from both Plexus Renales, and, likewise, communicate with the Trunk of the great sympathetic Nerve, by Filaments which run down obliquely from the Lumbar Ganglions. Afterwards they detach a Filament on each Side, which accompanies the spermatic Vessels.

The Fasciculi Mesenterici Posteriores, having produced the Plexus Mesentericus Inferior, send other Filaments downward, over the Extremities of the Aorta, behind the inferior Curvature of the Colon.

These inferior Fasciculi, or Filaments, adhere strongly to the neighbouring Parts of the Peritonæum, and, together with other Filaments from both Sides of the Trunk, form a third Plexus, which may be called Infra-mesentericus, or Hypogastricus.

This hypogastric Plexus, at the Extremity of the last Curvature of the Colon, on the fore Side of the last Vertebra of the Loins, is divided into two flat Ganglions, which surround the Beginning of the Intestinum Rectum backward, to which they are afterwards distributed, and, also, to the Bladder, and to the spermatic Vessels; and, having communicated by lateral Filaments with each Trunk of the great sympathetic Nerve, they send Filaments to all the Parts contained in the Pelvis.

The Trunk of the great sympathetic Nerve, having detached the five Branches, which form the collateral Rope, becomes much smaller; and, having reached the eleventh Vertebra of the Back, it approaches the collateral Trunk, and perforates the inferior Muscle of the Diaphragm.

Afterwards it runs more forward on the Bodies of the Vertebrae, and increases by the Addition of Filaments, from the last two Dorsal Pairs of Nerves.

It runs down between the Psoas, and neighbouring Tendons of the small Muscle of the Diaphragm, on the lateral Parts of the Vertebrae Lumbares, and anterior Side of the Os Sacrum.

At this Place the Right and Left sympathetic Trunks approach each other, and at the Extremity of the Os Sacrum they form a Communication, in the manner of an inverted Arch.

In its Passage, each Trunk receives commonly two Filaments from each Ganglion of the Nervi Lumbares and Sacri; and likewise forms small Ganglions between each Vertebra, which send some Filaments to the neighbouring Parts, and others which communicate with the Fasciculi of the Plexus Mesenterici.

The Pairs of Filaments which come from the first two or three Lumbar Ganglions, run a little downward, but the following run gradually upward; and it ought to be observed, that capillary Blood-vessels are discernible between and upon the Filaments of each Pair.

The inverted Arch, or inferior Union, of the two Trunks gives off, together with the two lowest Nervi Sacri, several Filaments to the Rectum, Anus, and Muscles of the Coccyx.

Lastly, the great sympathetic Nerve, from the first Vertebra of the Neck to the Extremity of the Os Sacrum, communicates by Filaments with all the Vertebral Nerves, as has been already said; but it must be observed, that in the Thorax these communicating Filaments are very small and slender, where the sympathetic Trunk is largest; and that, below the Diaphragm, they are stronger, because there the Trunk diminishes, especially on

the Os Sacrum, where it is very small. The same thing is to be observed concerning the Ganglions of the Trunk, the first Cervical Ganglion only excepted. See SPIRITUS.

NERVINUS. Nervine, or nervous.

NESIS, νῆσις. From νῆω, to accumulate; an Accumulation of Humours, inducing a Disease. Hippocrates de Locis in Homine.

NESTIS, νῆσις. The Intestinum Jejunum. Ruffus Ephes. de Appellat. Part. Corp. Human. Lib. I. Cap. 27.

NET, or NETA. The same as GALIA MOSCHATA. N. Myrepsus, Sect. 10. Cap. 73.

NETOPON, νήτωπον, according to Hesybius, is an Ointment composed of many Ingredients, and is otherwise called νηλώπιον, Netopion. Foessius says it was a fragrant and costly Ointment, consisting of a Mixture of many Kinds of Spices; such were the Ointments in Use among the delicate Roman Ladies; for Instance, the Unguentum spicatum, foliatum, Comagenum, and Sufinum. We find frequent Mention made of νήτωπον, in Hippocrates's Books of Womens Diseases, where it is prescribed, among other sweet-scented Things, in Affections of the Uterus. And, in the fifth and seventh Books of the Epidemics, we read, that Netopon was infused into the Ears, for the Cure of Deafness; for which Purpose was used, in the same manner, Amaracinum, the best Sort of Nardinum, and other Sorts of Oils, which were qualified, by their Tenuity and Heat, for cutting and dissolving the gross and viscous Humours, which were the Occasion of the Disorder. Νήτωπον seems to be the same which Erotian calls νήωπον, Neopon, and expounds by Oil of bitter Almonds; but νήωπον no-where occurs in Hippocrates, and we ought, doubtless, to read νήτωπον, or νηλώπιον (Metopion); for Metopion is frequently put for Oil of Almonds, as well as for Unguentum Aegyptium.

NEURAS, νῆρας. A Name for the Poterion, a Species of TRAGACANTHA. Dioscorides, Lib. 3. Cap. 17.

NEUROCHONDRODES, νηροχονδροῦδες, from νῆρον, a Nerve, and χόνδρος, a Cartilage. An Epithet for a Ligament partly cartilaginous, and partly membranous.

NEURODES. Nervous.

NEUROLOGIA. A Description of the Nerves.

NEUROMETERES. The same as NEPHROMETERES.

NEURON, νῆρον. A Nerve. The Signification of the Word Nerve is extended, by the ancient Physicians, to all those Bodies which are exanguious, white, and void of Cavities. To this Purpose are the Words of Galen, Com. 1. in 6 Epid. τέτα γὰρ ἐστὶ γέν, &c. "There are in Animals three Sorts of similar Bodies, which appear to be exanguious, and void of Cavity, one proceeding from the Bones, another from the Brain and Spinal Marrow, and a third from the Muscles: The first is usually called by Hippocrates Συνδεσμός (Syndesmos, a Ligament); the second νῆρον (Neuron) and τόνος (Tonus), and the last τένων (Tenon, a Tendon). But some call them all Nerves, on account of that Similitude which, as I said, there is between them, giving to the first Sort the Epithet of Συνδεσμός, (ligatory), to the second, those of αἰσθητικός (aestheticor, sensory) and προαιρετικός (proaireticor, voluntary, or subservient to the Will in Motion); and the last they comprehend under the Word ὑπονέμωσις (Aponeurosis)."

NEUROTICA. Nervous Medicines. Blancard.

NEUROTOMIA. An anatomical Dissection of the Nerves.

NEUROTOMUS. A Person who dissects the Nerves.

NEUROTOTOS, νηροτόπος, from νῆρον, a Nerve, and τήνωσχω, to wound. A Person who labours under a Wound or Puncture of a Nerve.

NEUTER. Neutral. As neutral Salts have of late acquired a considerable Reputation in Medicine, and as they are not commonly understood, it will be of some Importance, in this Place, to specify their Nature, and medicinal Virtues.

As Salts of various Kinds are the principal Foundations of Diseases, so there are no Medicines of greater Efficacy, both in preventing and curing Diseases, than Salts; some of which contribute to produce salutary Effects in one manner, and others in another. But, among all the various Salts in Nature, none are more safe and efficacious, than neutral Salts, which are, also, possessed of a cathartic Quality.

Neutral Salts are those compounded of an alkaline Salt, or Earth, and an acid Salt, in such a manner as that the one does not predominate over the other: Now as alkaline and acid Salts, when separate, are of so strong a Taste and Quality, as often to approach to a corrosive Nature; so, when mixed in a due Proportion with each other, they are, by the mutual Allision and Conflict of their Parts, so corrected, as, not only with respect to Taste, but, also, all their other Qualities, to become a Salt of a middle Nature, highly innocent in itself, and friendly to the human Constitution. Perfectly neutral Salts, therefore, are such as produce no Degree of Effervescence, but are perfectly saturated, upon the Affusion of any acid or alkaline Liquor. The most considerable and efficacious Salts of this kind are, among the native Salts, common Salt, Nitre, Aphronitrum, and those Salts which are, by boiling, obtained from some medicinal and acidulated Springs. The most considerable Salts of the neutral Kind,



Kind, prepared by Art, are the Arcanum Duplicatum, antimoniated Nitre, *Glauber's Salt*, and vitriolated Tartar, in all which there is no Effervescence produced by the Affusion either of an acid or an alkaline Liquor, unless the Acid is very strong and penetrating, such as Oil of Vitriol, which, when poured upon common Salt, or even upon Nitre, not only produces a violent Ebullition, but, also, raises a large Quantity of a subtile white Vapour from the common Salt, and one of a redish Colour from the Nitre; but such a Phenomenon is hardly ever produced by a gentler Acid, such as Spirit of Salt, Spirit of Vitriol, Vinegar, or Lemon-juice.

From what has been said, we may justly conclude, that neither Tartar, which is obtained from the Vegetable Kingdom, nor Alum or Vitriol, which are produced in the Mineral Kingdom, are properly to be classed among the neutral Salts; since the latter of these, upon the Affusion of any alkaline Liquor, whether of a mild or more drastic Quality, are forthwith put into a violent Commotion, and raised in Bubbles; a manifest Proof, that an acid Salt predominates in them, and that this Salt is not intimately mixed with the metallic or earthy Alkali; for such ought to be the Nature and Qualities of neutral Salts, that their component Parts being intimately united with each other, they may not be easily precipitated, upon the Affusion of an alkaline Liquor; for which Reason, neither Salt of Silver, nor Sugar of Lead, are, strictly and properly, neutral Salts. Neutral Salts, also, differ among themselves, since, in some, the Union of the alkaline and acid Principles is more close and intimate than in others.

Those in which this Union is highly close and intimate, are such as cannot be easily destroyed, such as all Salts prepared of an alkaline Principle, and the Acid of Vitriol; of which Kind are the Neutral Salts of mineral Waters, the Arcanum Duplicatum, vitriolated Tartar, the Salt prepared of Quick-lime, and the Acid of Vitriol, or Salt, as, also, common Salt and Nitre. But those Salts in which the Union of the acid and alkaline Principles is less intimate, and their Cohesion less firm, are such as are compounded of a gentle Acid, and an alkaline Earth; among the Number of which are the Salt of Coral, the Salt of Crabs-eyes, Tartarus Tartarizatus, and the Terra Foliated Tartari; all which, by means of a strong Acid, have their Parts easily resolved and precipitated.

Having premised these things, we now come to shew by conclusive and satisfactory Arguments, that Salts of a temperate and neutral Nature are not only of all others the most salutary, but, also, the safest, and most efficacious, both for preventing and curing some of the Disorders incident to the human Body.

First, then, in the Juices of all Animals, when in a sound and natural State, there is neither a pure acid nor alkaline Salt, either of a fixed or volatile Nature, but only Salts of a neutral Kind: Thus there is never a pure Acid to be found, either in the Blood or Lymph, which, however, was formerly asserted by Physicians ignorant of Chymistry. Nor, even in a morbid and preternatural State, is there any such pure Acid to be obtained from the Fluids of the Body, by any means whatever: Hence it is obvious not only how absurd, but, also, how dangerous, the Hypothesis of those is, who, some Centuries ago, boldly affirmed, that an Acid was the Cause of all Diseases; for which Reason they not only banished all Acids from Medicine, but, also, asserted, that the principal Intentions of all Remedies were either to destroy the Acidity or Viscidity of the human Fluids.

It is not, indeed, to be denied, that partly by means of the Aliments, and things taken into the Stomach, especially when remaining long there, crude and acid Juices are generated in the Primæ Viæ, which, being of a Quality unfriendly to Nature, for various Reasons excite violent Disorders, and not only produce, but, also, increase, the Symptoms; for which Reason, in Cases of this Nature, such Medicines as correct and temperate Acids, afford the most speedy and efficacious Relief: Yet it does not follow from this, that these acid Juices are, in an entire and unchanged State, as to their Texture, conveyed to the Mass of Blood, or mixed with the animal Fluids: But they are rather to be looked upon as foreign and morbid Humours in the Primæ Viæ, especially when they are not corrected by the digestive Powers, and the Admixture of other Liquors; for, though the Stomach can well enough bear a mild Acid, which, by its gentle Stimulus, not only creates an Appetite, but, also, promotes the Dissolution of the Aliments, yet a pure Acid is highly offensive to all the other Parts of the Body, both of the fluid and solid Kind; for an Acid so inspissates and coagulates the Fluids, as to retard their Circulation, and remarkably injures the solid Parts, especially those of the nervous and fibrous Kind, by its stimulating, corroding, or even constricting Quality.

For this Reason it is wisely ordered by bountiful Nature, that when the Aliments are dissolved in the Stomach, and expelled thence, there is forthwith poured upon them a Liquor, which, by its mild, sulphureous, and somewhat alkaline Nature, corrects the foreign Acid contained in them, and renders it friendly to the Veins, and all the other Parts of the Body: This Purpose is, also, greatly promoted by the lymphatic Juices, convey'd from the

Pancreas, and other Glands: Nor is a pure alkaline Salt, either of a fixed or volatile Kind, ever to be found in the Juices of Animals, especially when in a natural State. The Bile, that useful Liquor, justly accounted the most natural and efficacious Medicine of Animals, so nearly approaches to an alkaline Nature, that it corrects Acidity. But there can be no pure Alkali obtained from the human Fluids, because it produces an Effervescence with no Acids, unless highly strong and drastic; and even in this Case the Ebullition is not to be ascribed to an alkaline, but rather to a sulphureous and oleous Principle, because both expressed and distilled Oils are observed to excite an intense and hot Effervescence with any strong Spirit, such as Oil of Vitriol, or the Spiritus Nitri Fumans, prepared in the manner directed by *Hoffman*.

Nor is there any Alkali, either of a fixed or volatile Nature, to be obtained without the Help of Fire, either from the Blood, the Milk, the Chyle, the Lymph, the Excrements, the Sweat or Urine of Animals, in a sound and natural State: But if a volatile alkaline Matter is exhaled from the Juices, or if a manifest alkaline Quality is observed, either in the Excrements, the Bile, or the Urine, it is a certain Sign of a Corruption or Putrefaction. But, in a sound and natural State, the excrementitious Salts are rather of the neutral Kind, and composed of a fixed or volatile acid and alkaline Salt, as is obvious from the saline Taste of the Urine. But the neutral Salts of the human Body incline most to the Nature of Sal Ammoniac, by reason of the Composition of the volatile, alkaline, and urinous Salt, with the Acid; for if Quick-lime, or any alkaline Salt, is mixed with inspissated Urine, it forthwith diffuses the Smell of a volatile Salt. Besides, the Salt contained in the Urine is of a tartareous Nature, compounded of an acid and an oleous earthy Principle; as is sufficiently obvious, partly from the Inspissation of the Urine, and partly from that Tartar which adheres to the Sides and Bottoms of the Chamber-pots used by hypochondriac and scorbutic Patients.

Besides, the salutary Quality of neutral Salts is obvious from this, that they produce no Change nor Commotion in any of the animal Juices, which, we find, is quickly done by other acid or alkaline Salts, whether of a fixed or volatile Nature; for if, with any Quantity of human Blood, taken from a Vein, any acid Liquor is poured, such as Spirit of Salt, or Vitriol, a Solution of Salt, which is excessively acid, or a Solution of Alum or Vitriol, the Colour and Consistence of the Blood are destroyed, whilst the redish-purple Colour is changed into one of a livid and unseemly Kind, and the Blood, before thin and fluid, is coagulated; and the same Effect is generally produced by these Liquors, when mixed with the Lymph, the Serum, the Chyle, Milk, or the Whites of Eggs. It is, also, certain from the Experiments made in order to illustrate the Transfusion of Blood, that by injecting acid Liquors into the Vein, by means of a Syringe, the Death of the Animal was very soon produced, and the Blood found coagulated in the larger Vessels. When, also, we pour into Blood newly taken from the Veins any alkaline Liquor, such as Oil of Tartar per Deliquium, or well saturated Spirit of Sal Ammoniac, we observe a no less considerable Change in the Blood, since its natural purple Colour is heightened, and render'd nearer to that of Scarlet, and its Consistence becomes more fluid.

These alkaline Substances, in like manner, when mixed with Milk, Serum, or the Whites of Eggs, render them more fluid; and though the intensely red Colour, and preternatural Fluidity, induced in the Blood by alkaline Substances, are not destructive of its progressive and circulatory Motion through the numberless small Vessels of the human Body, yet a pure Alkali, exhibited in a pretty large Dose, effectually destroys and inverts the vital Crasis, and due Mixture, of the Mass of Blood, as is obvious from injecting alkaline Liquors into the Veins of Animals, since, by this means, mortal Convulsions are brought on, an Effect never produced by neutral Salts, which are of such a Nature as to induce no Change in the Texture and Mixture of the Blood, and vital Fluids. For if a Solution of common Salt and Sal Ammoniac, or of the Arcanum Duplicatum, the Terra Foliated Tartari, or antimoniated Nitre, is mixed with the human Blood, or Milk, it produces no Change in them. That Nitre, which is, also, a neutral Salt, is not prejudicial to the Mixture and vital Motions of the Blood, is, among other Circumstances, sufficiently obvious from the Experiments of *Malpighi*, in his Book *de Polypo Cordis*, since, by injecting six Drams of Nitre dissolved, into the jugular Vein of a strong Dog, there was no Alteration or Change observed, except a preternaturally copious Discharge of Urine.

But, among all the Classes of neutral Salts, none is better suited, or more friendly, to the human Body, than common Salt, whether obtained from the Sea, Mountains, or the Earth. Neither human Creatures, nor many other Animals, can be without this Species of Salt, because it not only seasons their Aliments, but, also, contributes to their better Digestion, or intimate Resolution. Nor is common Salt admitted into the Mixture of the vital Fluids, but ought again to be totally expelled thro'



thro' proper Emunctories, since, when left in the Body, it proves prejudicial to the Texture of the slender Fibres, by vellicating and corroding which, it produces various Misfortunes. When used, however, with Aliments, it produces several happy Effects, besides those already mentioned; for, by gently stimulating the moving Fibres, and the excretory Ducts composed of them, it not only accelerates the Motion of the Blood and Humours, by which means their grosser Parts are excellently triturated, and better mixed with the more fluid Parts; but, also, promotes the salutary Secretions, and the necessary Excretions, of other superfluous Substances, by means of which the Salt itself is, also, more happily eliminated from the Body.

Among the neutral Salts highly salutary and friendly to the human Body, we may justly reckon Sugar, which, when duly used, is not so offensive to the Blood as is generally thought, though it is not proper in all Diseases, nor for particular Persons at all Seasons. But that it is daily used to a kind of Excess by some, who, instead of being injured by it, live in a sound and perfect State of Health, is certain from daily Experience; for Sugar is a sweet and mild Salt, which is far from being unfriendly to the Mixture of the Fluids, both because it corrects acid and bilious Humours, and, by lubricating the Primæ Viæ, and gently stimulating the intestinal Fibres, renders the Body more soluble. Besides, another Advantage may arise from the Use of Sugar among Aliments; for it is known, that all Oils, and pinguious Substances, are incapable of uniting with Water; but this Union is excellently produced by the Addition of Sugar, as is obvious from this Experiment: Oil of Cinnamon does not mix with Water, but falls to the Bottom; but if a few Drops of it are previously mixed with Sugar, and then put into Water, upon agitating them together, we forthwith perceive an intimate Conjunction of the Oil and Water, so that by this Method an extemporaneous Cinnamon-water may be prepared. Since, therefore, human Creatures often eat large Quantities of Fat, which are with Difficulty resolved, and converted into a lacteal Juice, by means of Water; yet that this Effect may be produced by means of Sugar, and sweet Substances, is sufficiently obvious, since there is no more speedy and effectual manner of fattening Geese and Capons, than by mixing Sugar with their Aliments. This, in my Opinion, is, also, proved, by adding Sugar to Cream, by which means the Separation of the buttery Part from the others is prevented.

As neutral Salts, used among Aliments, are of singular Efficacy in preserving Health, so, as Medicines, they are highly efficacious in the Cure of Diseases. And, since this is the Point we principally intend to prove, we shall, for the sake of Perspicuity, distinguish neutral Salts into two Classes, that is, those which are produced naturally, and those prepared by Art. Among the Salts, therefore, spontaneously produced by Nature, besides common Salt, we reckon the essential Salts, by a proper Encheiresis, obtained from the Juices of most Plants; and the most considerable of which approach to the Nature and Mixture of that Tartar-like Preparation composed of an acid and an alkaline Earth, together with an Intermixture of sulphureous Particles; and it is highly probable, that the medicinal Virtues of Plants are derived from this neutral Salt they contain; for it is certain from Experience, that such Vegetables as, by a due Encheiresis, yield the largest Quantity of neutral Salts, are far superior, in Virtue and Efficacy, to such as yield a smaller Quantity.

The most considerable Herbs belonging to this Class are such as are appropriated to the Cure of Wounds, and the Purification of the Blood; the most considerable of which are Paul's Betony, Scordium, Cardus Benedictus, Dead-nettle, Yarrow, Colts-foot, Plantain, Ground-ivy, Borrage, Bugloss, the lesser Centaury, Fumitory, Winter-green, Daisies, Chamomile-flowers, Wormwood, Brook-lime, Bears-breech, Water-cresses, German-der, Ladies-mantle, Middle Consound, Spleenwort, and Scabious; the Juices, Decoctions, and Infusions of which produce the most surprising and salutary Effects in the most violent chronical Diseases arising from Obstructions, Infarctions, or Corruptions of the Viscera, or Obstructions of the Emunctories, and excretory Ducts. And these happy Effects are owing to nothing but the neutral Salt contained in these Herbs, and which is partly of a tartarous, and partly of a nitrous Quality. Hence, by reason of the large Quantity of this neutral Salt, the Extracts of these Herbs cannot be easily preserved dry, and without dissolving, in the open Air; which is, also, observable in essential Salt, or the Terra Foliated Tartari, and in that Salt which is obtained from the Acid of Rhenish Wine, and the Oil of Tartar mixed, after due Insipitation. By reason, also, of this large Quantity of neutral Salt of a tartarous Nature, these Plants, by burning, also, yield a considerable Quantity of an alkaline fixed Salt; for as the Tartar of Wine, or Nitre, is, by Calcination, changed into an alkaline fixed Salt, so we are of Opinion, that this alkaline fixed Salt, which, by burning, we obtain from these Plants, derives its Origin from the neutral tartarous Salt they contain.

Among the most salutary neutral Salts spontaneously produced without any artificial Mixture of an acid and alkaline Salt, we may justly reckon Nitre, which is generated by sulphureous, pinguious, and alkaline Earths, by the Fæces and Excrements

of Animals in a State of Putrefaction, as, also, by Ashes, Quick-lime, and putrid Earths, when long exposed to the Sun and Rain, by imbibing, as it were, and attracting the universal Acid of the Atmosphere. And so surprising are the Virtues of this Medicine, that the Healing Art would be very imperfect without it; for Nitre is a Salt of a Quality so friendly to Nature, that, except when exhibited in too large Doses, it not only produces no Misfortunes, but is, also, of all other the most efficacious and instantaneous Remedy for preventing and removing those violent Disorders, which arise from a Redundance of Bile, a violent Ebullition, or preternatural Heat, of the Blood and Humours. For this Reason Lord Verulam, in his *Historia Vitæ & Mortis*, affirmed, that a Scruple of Nitre, frequently exhibited for a Dose, greatly contributed to the Protraction of Life: And, if any Medicine deserve the Title of Universal, common Water and Nitre certainly are so; for if the Body is to be rendered soluble, and a Discharge of the Urine promoted, or if, in a State of preternatural Heat, Pain, and Spasms, the Transpiration is to be rendered freer, these Effects are excellently produced by means of Nitre. Besides, if the Intention is to correct and mitigate that caustic and virulent Acrimony of the bilious Humours, which lays a Foundation for Choleras, Diarrheas, Dysenteries, immoderate Vomings, Nauseas, bilious and burning Fevers, and violent Inflammations of the Stomach and Intestines, no Medicine in Nature produces either more salutary or more instantaneous Effects than Nitre. If the internal Parts are so seized with an Inflammation, as to be, in some measure, scorched, and if, in consequence of this, the most fluid Parts of the Blood are carried off, the Patient's Strength is impaired, and an insupportable Thirst, together with continual Watchings, brought on, Nitre, mixed with other proper Medicines, is an Ingredient of the highest Efficacy, and contributes in an uncommon Degree to the Cure; for, among all the safe and genuine Refrigerants appropriated to the Extinction of febrile and inflammatory Heats, we find none in Nature comparable to Nitre. If a preternatural Spissitude of the Humours, which lays a Foundation for Obstructions of the Vessels, and polypose Concretions, is to be resolved, the Effect is by no Medicine to be more effectually produced than by Nitre, which is by no means possessed of a Power of coagulating the human Juices, which some Men of Skill and Learning have asserted, in Opposition to the Evidence of Sense; since a Solution of depurated Nitre with Water, added to a Portion of coagulated and blackish-coloured Blood, renders it both more fluid, and of a finer Colour; for the darkish-black Colour is changed into a beautiful red, approaching that of scarlet. And, as Nitre is possessed of a peculiar Virtue of colliquating the Serum and Lymph, it moistens such Parts as are dry, softens such as are hard, and, by colliquating the tenacious Humours, removes Obstructions.

Besides, such is the Efficacy of Nitre as to prevent saline and tartarous Concretions in the Kidneys, Bladder, and other Parts. This is not only certain from Experience, but, also, confirm'd by the Authorities of judicious Physicians. Thus *Renatus, de Medicamentis Chymicis*, affirms, that Patients afflicted with the Stone or Dysury, whether adult, or young, weak, or robust, are greatly relieved by the Use of Nitre; and asserts, that if a due Dose of it is taken every fourteen Days, it is impossible there should ever be any Sand generated in the Kidneys. *Timeus*, also, gives an Account of a certain Man, who, by the long-continued Use of prepared Nitre, was perfectly freed from the Stone. And *Grulmgus*, in *Observat. de Calculo*, uses these Words: "It is sufficiently well known, that Sal Prunelle is an excellent Remedy, both for preventing and curing the Gravel."

What violent spasmodic and flatulent Symptoms, productive of uncommon Misfortunes through the whole Body, arise from a Stagnation of the Blood in the Vessels of the Stomach and Intestines, is sufficiently obvious from the deplorable Condition of hypochondriac and hysteric Patients. But I frankly confess, that among all the Medicines allotted for these Purposes, I know none so effectual in removing the Spasms, dissolving the Flatulences, and allaying the Severity of the Pains, as Nitre. For which Reason its Use in the spasmodic or convulsive Colic cannot be too highly extolled. If, in consequence of violent Pain and Spasms, Transpiration, Sweat, or a Discharge of the Urine, are obstructed, if the Patient is costive, or if the salutary Excretions of Blood, whether from the hæmorrhoidal Veins, or the Uterus in Child-bed Women, are defective, Nitre, duly exhibited, allays the Pains and Spasms, and, by this means, rendering the small Ducts pervious, restores these salutary Evacuations. But since, by these violent and spasmodic Strictures of the Vessels and Viscera, the free Circulation of the Blood is hindered, and the Humours conveyed to other remote Parts, with a greater Motion and Impetus, by which means the Vessels, distended by too copious a Congestion, are ruptured, and immoderate Effusions of Blood happen, hence Spittings of Blood, immoderate Discharges of Blood from the Nose, Uterus, or hæmorrhoidal Veins, or a Discharge of bloody Urine, draw their Origins.

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In Cases of this Nature the most effectual Medicines are those of the nitrous Kind, which, by removing the Spasms, without any subsequent Constriction, restore the free Circulation of the Blood, and stop these immoderate and excessive Evacuations. Among all the Physicians of the preceding Age, none made more frequent Use of Nitre than *Riverius*, who, in stopping Hæmorrhages, exhibited it with uncommon Success. Thus, in an immoderate Flux of the Lochia, he, in *Cent. 1. Obs. 26.* highly extols the Use of Nitre. In an immoderate Discharge of the Menfes he recommends it, in *Cent. 1. Obs. 94.* In a Spitting of Blood he orders it, in *Cent. 1. Obs. 82.* And in Hæmorrhages, accompanied with malignant Fevers, he prescribes Nitre, in *Cent. 1. Obs. 18.* After *Riverius*, *Mynsicht* always thought the medicinal Virtues of Nitre of the greatest Importance, as is obvious from his *Armamentarium Chymicum*, in which there are various excellent Compositions, the Basis of which is Nitre.

To the Class of neutral Salts, also, belongs Aphronitrum, which was not unknown to the Antients, and especially to *Pliny*. This Substance drops from the Tops of stony Caves, becomes concreted, and is the joint Offspring of that acid universal Salt which the Air contains, and of a gypseo-calcareous Earth. It is a Salt of a somewhat bitterish Taste, but fixed, and capable of sustaining the Force of the Fire, since it is neither fused, takes Fire, nor is evaporated by its means. Large Quantities of this Substance are not only produced in the *Devil's Cave*, near *Jena*, but, also, great abundance of it is often found in subterraneous Passages, especially those cut thro' Rocks. It is certain from Experience, that this Salt, which resembles that of *Epsom*, is not only of an inciding and diuretic, but, also, when exhibited in large Doses, of a cathartic Quality.

As common Salt is highly salutary among Aliments, so its Use is not to be entirely banished from Medicine. It is sufficiently known of what Efficacy it is in rendering the Body soluble, and procuring a Discharge of the Fæces, when added to Clysters, in which one Dram of it proves more effectual than a whole Ounce of any other Aperient. When taken internally, also, in a pretty large Quantity, among Aliments, it renders the Body soluble: For this Purpose the Eating salt Herrings is very proper. Neither are we very certain, whether common Salt is not frequently the principal Ingredient in some mineral and medicinal Springs, celebrated for cathartic Virtues. About forty Years ago, at *Hornbusen*, in the Principality of *Halberstadt*, some medicinal Waters were discovered, to which there was a great Resort of Sick. I, being Physician in Ordinary at these Springs, upon instituting a chymical Analysis of the Waters, found that they contained nothing but common Salt, and another Sal fixum, like the Arcanum Duplicatum. The former of these in Crystallization retained a cubical, and the latter an hexagonal Figure. But the Weight of the common Salt far exceeded that of the other. Three or four Pints of these Waters, drank, rendered the Body gently soluble, and procured a considerable Number of Stools. They, also, increased a languid Appetite, and, by inciding the thick and viscid Humours of the Stomach, excellently contributed to Digestion, and rendered the Body brisk and agile. They were, also, in a particular manner, possessed of an anthelmintic Virtue, since, along with the Fæces, they evacuated large Quantities of Worms of all Kinds, and especially those called Alcarides. The external Use of them not only dissolved Tumors, but, also, cured the Itch, and inveterate Ulcers. About thirty Years ago, not far from the City of *Stassfurt*, there appeared a medicinal Spring, the Waters of which purged very briskly, and were possessed of almost the same Virtues with the former; and, upon making a chymical Analysis of these Waters, I could obtain nothing but common Salt.

But, as these Springs did not continue for any considerable Time, we now come to consider those, which, for many Ages, have been celebrated for their medicinal Virtues, and which derive their Efficacy principally from common Salt. Of this Kind are the Springs of *Wiesbaden*, long ago mentioned by *Tacitus*; and though, till a few Years ago, these were only used externally, yet their medicinal Use is highly proper and efficacious in Inflammations of the Viscera, Loss of Appetite, Flatulences, and Costiveness. They are, also, highly beneficial in the Cure of those Disorders, which sometimes succeed Abortions, and hard Labours. Having, with great Accuracy, instituted a chymical Analysis of these Waters, which were of themselves highly light and subtile, I could obtain nothing but a genuine common Salt, mixed with a certain alkaline Salt, which not only discovered itself by its Taste, and cubic Crystals, but, also, upon an Admixture of Oil of Vitriol, sent up a copious Smoke, of an highly penetrating Smell, like that commonly arising from Sal Ammoniac.

Among the neutral Salts of the native and salutary Kind, we may, also, class those for the most part contained in all the hot and cold medicinal Springs of *Germany*, and from which these celebrated Waters derive their principal Virtues. The Antients foolishly derived the Virtues of medicinal Springs from the various Earths, Minerals, and Metals they supposed them to contain, without so much as making mention of one of the Prin-

ciples they really contained. But it is still more surprising, that many, even of the Moderns, should still maintain, that cold medicinal Springs are impregnated with a vitriolic Salt, and contain a very strong Acid; whereas it is obvious, that they contain an alkaline Salt, since they produce an Effervescence with all Acids, and afford a neutral Salt. And even many of these Waters, after Evaporation, leave an highly pure Salt; and, when poured into Milk, are so far from coagulating it, that they render it more fluid. And though most of the hot and cold medicinal Springs have, in some Degree, a vitriolic Taste, yet their medicinal Virtues, and Efficacy in the Cure of Diseases, by no means depend upon their vitriolic Salt; for, when they are but a little warmed, they immediately lose this Taste, and no longer acquire a dark-purple Colour from a Mixture of Galls; which is a manifest Proof, that the chalybeate, or vitriolic Parts they contain are not only small in Quantity, but, also, of a volatile Nature.

It is much more certain, that, if we except that spirituous aereo-ethereal, penetrating, and subtile Principle, which is the Cause of the sparkling Bubbles, the principal Elements and Ingredients both of hot and cold medicinal Springs are either fixed alkaline Salts, or those of a neutral Kind, approaching nearly to the Nature of *Glauber's Salt*, or vitriolated Tartar; and it is owing to these Salts, that these Waters are so efficacious in inciding viscid Humours, removing Obstructions, correcting Acidities in the Primæ Viæ, and promoting all the Excretions, especially those by Stool and Urine. It is, therefore, obvious, that the Ingredients of these Springs are of so innocent a Nature, and so divested of every drastic Quality, that their Waters may be drank without any Dread of Danger; so that those Physicians are not only deceived themselves, but, also, grossly impose upon others, who, by specious Arguments, drawn from the Dread of Danger, and the violent Operation, dissuade Patients, capable of having their Lives saved by this very means, from the Use of these salutary Waters. From what has been said, we may perceive how efficacious both neutral and alkaline Salts must be in the Cure of obstinate chronical Disorders, if they are diluted with a sufficient Quantity of Water, used with a due Regimen, and exhibited at proper Seasons.

It is, also, worth our Observation, with respect to the native Salts of mineral Waters, that these Springs, which, besides an alkaline Salt, contain large Quantities of neutral Salts, are far more cathartic than those which only contain a large Quantity of alkaline Salt. And this is the Reason why, among almost all the hot medicinal Springs in *Europe*, there are none more purgative than the *Caroline Waters*; whereas those of *Embsen*, which contain a pure alkaline Salt, are but a very weak and languid Purge; for the *Caroline Waters*, besides an alkaline and saline earthy Principle, also, contain a neutral Salt, compounded of the alkaline Salt, and the Acid of Sulphur. For from that Salt of the *Caroline Waters*, left after Evaporation, by the Addition of the Powder of Charcoal, and Fusion by Fire, a Liver of Sulphur is obtained; and from this Liver of Sulphur the Tincture of Sulphur may be extracted with Spirit of Wine; and, by boiling it with Water, the Milk of Sulphur is precipitated. This Regeneration of common Sulphur from this Salt, sufficiently demonstrates the Presence of a neutral Salt, formed by the Acid of Vitriol or Sulphur; since, without this Salt, common and inflammable Sulphur could not be regenerated. Besides, this Salt of the *Caroline Springs*, though of a considerably alkaline Taste, is not, however, like other alkaline Salts, colligated in the open Air; which is owing to the mineral Acid with which it is joined.

Among all the cold medicinal Springs in *Germany*, hardly any are more purgative than those of *Egra*; for five or six Pints of them, drank, sometimes procure six or eight Stools, without any Uneasiness; whereas the same Quantity of those of *Pyrmont* procure only three or four. But the *Selteran* and *Antonian Springs*, as, also, those of *Wildungen*, *Elstera*, and *Buichen* in *Bohemia*, are only faint and languid Purgatives, but rather promote a Discharge of the Urine. This Diversity of Effects in these medicinal Springs is only to be accounted for from the Presence of a larger Quantity of neutral Salt in some, than is to be found in others; for, by a due Boiling and Insipissation of the Waters of *Egra*, a large Quantity of neutral Salt is obtained, half an Ounce of which, exhibited in a proper aqueous Vehicle, purges very briskly; and this Salt is sold very cheap at *Egra*. The Springs of *Schwalbae*, besides their subtile Waters, contain not only an aereal and subtile Principle, but, also, an alkaline Salt, and one of the neutral Kind; for which Reason, they are, also, of a pretty purgative Quality, of which, however, the *Antonian*, *Selteran*, and some other Springs, are destitute, because, by Boiling and Insipissation, they only yield a pure alkaline Salt. Some time ago I discovered an extemporaneous Method of rendering these alkaline Waters sufficiently cathartic, and not only of the same Taste, but, also, of the same Virtues with those of *Egra*, by only adding to them a proper Quantity of the Spirit of Vitriol, which, by incorporating with their alkaline Salt, forms a neutral Salt, resembling vitriolated Tartar.

Not



Not only in *Germany*, but, also, in other Parts of *Europe*, such as *France* and *England*, there are cold medicinal Springs remarkable for their cathartic Virtue, and from which a neutral Salt may be, also, obtained by boiling: Among these the most celebrated in *England* are those at *Epsom*, which, by means of the bitterish Sal falsum they contain, are an excellent Purgative. This Circumstance prompted the celebrated *Dr. Grew* to obtain by boiling, from these Waters, a neutral Salt of a bitterish Taste, and a purgative Quality. This Gentleman, also, wrote a small Treatise on the Nature and Virtues of that Salt. Some time ago I procured some of this Salt genuine and unadulterated from *England*, and was told, that a Pint of the Water hardly yielded half a Dram of the Salt. I, also, mixed this Salt with the Powder of Charcoal, and fused it; upon which I obtain'd a sulphureous Mass of a purple Colour, and which bore a great Resemblance to the Liver of Sulphur.

*Dr. Grew* informs us, that this Salt, when genuine, is never destitute of a cathartic Quality. 'Tis said to be an efficacious Remedy in many violent Distempers, without producing any other Disorder, if it is duly exhibited. 'Tis the mildest of almost all other Purgatives, does not throw the Humours into Commotions, and never produces Sickness, Deliriums, and Gripes. The Use of this Salt is recommended in Disorders of the Stomach, such as Cardialgias, immoderate Vomitings, and hypochondriacal Disorders arising from an hot Cause. 'Tis, also, commended in Diseases of the Intestines and lower Belly, in the Colic, the Gravel, Disorders arising from Worms, an Heat and Suppression of Urine, the Jaundice, and the hysteric Passion. 'Tis, besides, highly beneficial in Disorders of the Head, and successfully exhibited in Cephalalgias, Vertigos, Deliriums, and Inflammations of the Eyes. It may be exhibited in Spring-water, or any other pure Water; as, also, in Barley-water, or Water-gruel, or Whey: It may be, also, boiled a little in Water, and season'd with Mace; half an Ounce, or a whole Ounce, of the Salt may be added to two or three Pints of the Water.

Some Years ago, when I resided at the *Toplitz* Springs, in order to investigate their Natures, upon making an accurate chymical Examination of the *Sedlitz* Waters, about two Miles distant from *Toplitz*, I obtained a Salt of a bitterish Taste, and cathartic Quality, in every respect like that of *Epsom*, only with this Difference, that one Pint of the Water by Evaporation yielded a Dram and half of the Salt: The Water from which this Salt is obtain'd is so bitter, that the Tongue can hardly endure it; for it is far bitterer than the Salt itself. Six Drams of the Salt purge briskly, and the same Effect is produced by four Pints of the Water. And, as I lately had a very considerable Quantity of the *Caroline* Salt sent me by *Mr. Gorelli*, I fused some Part of it, with an equal Quantity of the Powder of Charcoal, in an ignited Crucible; by which means I obtained a Liver of Sulphur, of a disagreeable sulphureous Smell, and a purple Colour; from which, by means of highly rectified Spirit of Wine, I extracted the true Tincture of Sulphur of a golden Colour.

Some time ago there was, also, inscribed to *Dr. Gorelli*, an epistolary Dissertation concerning the lately discover'd cathartic Salt in the Mines of *Hungary*, by *Dr. Herman*, who, in the subterraneous Passages of *Newhausel*, found a white, bitterish, and highly tender Salt, adhering to the Sides of the Rocks, in Form and Taste like the cathartic *Epsom* Salt, and which, when taken in a pretty large Dose, procured several Stools. He afterwards, also, found another Salt of the same Nature and Virtues, white like Snow, and of a bitterish Taste, adhering to the Sides of the Passages in the largest of the Mines. And since with this Salt, by means of the Salt of Tartar, and Powder of Charcoal, he produced a true mineral Sulphur, 'tis not to be doubted but it is of the same Nature with the *Epsom* or *Sedlitz* Salts. The Generation of this cathartic mineral Salt, which is partly found moist in the Springs, and partly dry, adhering to the Rocks, seems to agree pretty much with that of the Aphronitrum, which is coagulated by the sulphureous Principle of the Air, in stony, calcareous, and gypseous Earth, as its Matrix, and is found in large Quantities in the Cavities of the Mountains about *Jena*; and with respect to its Form, Taste, and Virtue, both in the Fire, and in the human Body, does not differ from the *Epsom*, *Sedlitz*, and *Hungarian* Salts, but only in this, that, being of the native fossil Kind, it is generated of a sulphureous and subterraneous Acid adhering to alkaline Earths, which in those Places are found in great abundance. This is, also, obvious, because from the *Epsom*, *Sedlitz*, and *Hungarian* Salts, a certain stony Earth is partly precipitated by an Alkali, and may be partly obtained by a second Solution and Depuration of this Salt with Water.

From what has been said, we may be convinced of the Efficacy of native neutral Salts, which are partly moist, and partly dry, in the Cure of Diseases; and that, when taken in large Doses, they are, besides other Virtues, possessed of a

cathartic Quality, by means of which they powerfully, but safely and easily, eliminate the Fæces. But we now pass from the native neutral Salts, to those of the pharmaceutic and chymical Kind, with an Intention to inquire, whether the same cathartic and medicinal Qualities are, also, to be found in them. That chymical Salt, then, which is prepared of the Acid of mineral Sulphur mixed with an alkaline Salt, approaches very nearly to the Nature of that neutral Salt, which the medicinal Springs contain; for which Reason similar Effects may be justly expected from it. But as that specific Acid, which is the principal Ingredient in mineral Sulphur, is, also, contain'd in other Minerals, such as Vitriol and Alum, so there are various Methods of preparing this Salt, in each of which its Virtues and Efficacy remain the same; for there is one Salt prepared of Nitre and Vitriol, and consequently may be obtain'd from the Residuum of Aqua-fortis, and is call'd, *Vitriolated Nitre*, which *Mynsicht* call'd *The Arcanum Duplicatum*, because it was formed of these two Salts, and formerly look'd upon as a Secret at the Court of *Gottorp*, since *Frederic* Prince of *Holstein* purchased the Method of preparing it at the Price of five hundred Imperials. But this Salt may be prepared in a far more compendious Method, if, after the Nitre is reduced to an Alkali, or fixed, the Spirit of Vitriol is poured upon it Drop by Drop, to the just Point of Saturation, that is, till it is rendered a neutral Salt. And certainly this Method is far safer than the former, because the Vitriol, which is an Ingredient in the Aqua-fortis, often partakes of Copper, which must be duly separated by repeated Calcinations, otherwise the *Arcanum Duplicatum*, if more of it than one Scruple is exhibited, will excite a Vomiting.

But because the Salt of Tartar fix'd, and duly calcin'd, differs very little in its Nature and Virtues from fix'd Nitre, some are of Opinion, that the same Remedy, which in the Shops is call'd *Vitriolated Tartar*, may be prepared of Salt of Tartar, and Spirit of Vitriol; and *Tachenius* thinks, that it may be made of Vitriol, and an alkaline Salt. And since the Spirit extracted from mineral Sulphur is not in reality different from Spirit of Vitriol, and since in Antimony there is a large Quantity of pure mineral Sulphur, so the Chymists know how to prepare the *Arcanum Duplicatum*, either of Nitre and Sulphur, or of Nitre and Antimony. The former Preparation they call *Sal Polychrestum*, which they make by a previous Calcination of equal Portions of Nitre and Sulphur in a Crucible. But the latter Medicine is obtain'd from diaphoretic Antimony, made with three Parts of Nitre, and one Part of Antimony, by dissolving and crystallizing the Nitre. And this Preparation is in the Shops generally call'd *Antimoniated Nitre*; for, if Nitre is burned with Sulphur, an highly volatile Acid is exhaled from the Nitre; and the more fixed Acid of the Sulphur, by uniting itself more closely with the alkaline Salt of the Nitre, constitutes a neutral Salt of a somewhat bitterish Taste, and of a detergent and laxative Quality. Besides, as the Acid of Alum does not differ from the Acid of Vitriol, and that of Sulphur, but is of a like Nature and Quality, hence the same Medicine may be commodiously prepared of Alum with a fixed alkaline Salt, well mixed and united with Salt of Tartar, or Pot-ash.

From what has been said, we may justly infer, that the *Arcanum Duplicatum*, prepared of the Residuum of Aqua-fortis, Vitriolated Nitre, prepared of fixed Nitre, and the Spirit of Vitriol, Vitriolated Tartar, antimoniated Nitre, Sal Polychrestum, and the purgative Salt of Alum, invented by *Keilimgius*, a Physician of *Isleben*, and described by *Hoffman* in his *Clavis Schroederiana*, because their Ingredients are not of different Natures, are therefore of the same medicinal Virtues; and that, in the Cure of Diseases, the one may very properly be used as a Succedaneum to another; for all of these, exhibited in a moderate Dose in some proper Vehicle, incite and dissolve viscid Humours, and, by stimulating the excretory Ducts, not only preserve the Body soluble, but, also, promote a Discharge of the Urine: But when they are exhibited in a larger Dose, half an Ounce for Instance, or more, in a due Quantity of some aqueous Vehicle, they operate in the same manner with cold medicinal Waters, by procuring five or six Stools. For this Reason, when there is a Necessity for a Purgative, which operates without producing any Ebullition of the Blood, any spasmodic Contraction of the intestinal Fibres, any Virulence or Exacerbation of the vital Motions, these Salts are commodiously exhibited in a pretty liberal Dose. But, in a smaller Dose, any one of them mix'd with Nitre, Salt of Tartar, or Crabs-eyes, affords an aperient and detergent Salt, of singular Efficacy in Medicine, and which may with uncommon Success be exhibited in all intermittent Fevers, hypochondriacal Disorders, the Stone, the Asthma, the flatulent Colic, Costiveness, a Jaundice, and a Cachexy.

The Sal Mirabile of *Glauber*, by him so much commended, not only for its Use in chymical Preparations, but, also, for



its medicinal Virtues, of a neutral Nature, and compounded of a strong Acid of Vitriol, and common Salt, or Sal Gemmæ, whilst the penetrating Acid of Vitriol attacks the alkaline and earthy Salt, and Principle of which the common Salt consists, and, by uniting itself with it, constitutes a neutral Salt, whilst the acid Spirit of Salt is evaporated. This Salt, which is of a considerably bitterish Taste, and an excellent stomachic and aperient Medicine, is purgative, when exhibited in pretty large Doses. This Salt was by *Glauber* call'd *Mirabile*, or *Wonderful*, because, if equal Quantities of it, and the Filings of any Metal, are mix'd with half the Quantity of Powder of Charcoal, and treated with a fusory Fire, he imagin'd, that, by this means, Sulphur might be extract'd from any Metal, whilst the dephlegmated Spirit of Wine, poured upon it, extracts a sulphureous Tincture. But that *Glauber* err'd in this, is sufficiently obvious, because, without the Addition of any Metal, a sulphureous Mass like the Liver of Sulphur, from which a true mineral Sulphur may be extract'd, may be obtain'd from this Salt alone, and the Powder of Charcoal, if a small Quantity of alkaline Salt is only added, as *Stahl* has shewn by various Experiments; for by this means the Sulphur, which is compounded of the peculiar Acid contain'd in the Sulphur, and a phlogistic combustible Principle, is only regenerated; as Mr. *Boyle* obtained a perfect common Sulphur from the Oils of Vitriol and Turpentine; and I myself obtain'd the same by Distillation, from Opium, and Oil of Vitriol.

But since *Glauber's* Salt consists of the same Ingredients with the above-mentioned neutral Salts, such as the Arcanum Duplicatum, and others of a like Kind, that is, of the Acid of Sulphur and Vitriol, and an alkaline fixed Salt, like that contained in common Salt, (for by Spirit of Salt, and Salt of Tartar, a perfect common Salt is formed) hence we may justly conclude, that artificial Sulphur may be produced from all these Salts, treated with Salt of Tartar, and an Addition of the Powder of Charcoal, for the sake of Fusion; and as the same Thing happens in the *Epsom* Salt, that of *Egra*, that of *Sedlitz*, the native Salt of *Hungary*, and the Salt obtained from the *Caroline* Springs, hence we may justly infer, that all these Salts, both natural and artificial, as they are of the same Nature, and consist of the same Ingredients, must nearly agree in their Effects, and Medicinal Virtues.

We now come to consider that neutral Salt, which is sold at a low Price, for *Epsom* Salt; and is imported to *Germany* from *England*, in great Quantities. That this Medicine is no genuine Extract from the *Epsom* Waters, we may readily conclude from the small Quantity of Salt these Waters contain, and the low Price at which the spurious Salt is sold. From repeated Experience, however, I am so far from condemning this Salt, that I extol and commend it for its aperient and purgative Qualities. This Salt is artificially produced, and not unlike that of *Glauber*, which is, also, sometimes sold for *Epsom* Salt; but because *Glauber's* Salt is sold at a great Price, in comparison of that of *Epsom* Salt, 'tis not to be doubted but the latter is prepared of cheaper Ingredients than the former, though in the same manner; for, as *Lentilius*, in *Alfifell. Nat. Curios. Cent.* 3. and 4. justly observes, some of the Chymists in *England* prepare *Epsom* Salt of the Caput Mortuum of Vitriol, or Vitriol well calcin'd, and the Lixivium remaining in the Boiling of Salt, and which, besides common Salt, also, contains an earthy alkaline Salt. This Salt I treated with a calcining Fire, and the Addition of Powder of Charcoal; by which means it was not fused, but, by means of a brisker Fire, almost the Whole of it was evaporated, and filled the Chamber with a fetid Vapour, like that of common Sulphur. But, by an Addition of Salt of Tartar, I obtained a Liver of Sulphur from it. From which Circumstance 'tis certain, that this Salt is generated of the Acid of Sulphur contained in the Vitriol joined with the Earth of the Alkaline, or Sea Salt. See S A L.

Having treated of those Salts which are generated of the Acid of Sulphur, and an alkaline Salt, we now come to consider the Nature of some other Salts used in Medicine: Among these are Sal Ammoniac, which is generated of the volatile Salt of Urine, or Soot, and Sea Salt; and which, by the Addition of the volatile urinous Principle, is of a far more acrimonious and penetrating Nature, and, for that Reason, highly efficacious in attenuating and resolving viscid and tenacious Humours in the Primæ Viæ. And *Alhoy*, a celebrated *Dutch* Physician, in a particular Treatise, affirms, That Intermittent Fevers of all Kinds may be infallibly cured by this Salt, if it is exhibited in due Quantities, and at proper Times. But I am of Opinion, that this Remedy is far better suited to robust Patients, such as the *Dutch* generally are, than to Persons of delicate and tender Constitutions.

Of the same Nature and Virtues is the digestive Salt of *Sylvius*, which that Physician frequently used, in order to destroy viscid Crudities, quicken the Appetite, and remove Intermittent Fe-

vers: And this Salt is prepared of the Residuum of the Spirit of Sal Ammoniac prepared with Salt of Tartar, by Elixivation with Water. 'Tis, also, certain from Experience, that these Salts, when exhibited in a pretty large Dose, are highly purgative: But I would advise Practitioners, never to prescribe large Doses of them; since, unless their acrid Spicula are, in some measure, sheathed up by viscid and tenacious Particles in the Body, and unless they are diluted with a sufficient Quantity of Liquor, they may easily destroy the villous Contexture of the Glands and Intestines. There are, also, used in Medicine neutral Salts prepared of Tartar, as, also, of Vinegar and Salts, or alkaline Substances. Of this Kind is the Tartarus Tartaratus, the *Sal Essentiale*, or the Terra Foliate Tartari, a Solution of Crabs-eyes, the Salt of Coral, and of Mother of Pearl; all which Salts were in former Times highly esteemed, especially by *Tachenius*, who sold the Terra Foliate Tartari, mixed with a Solution of Crabs-eyes, for the fixed Salt of Vipers, by which means he acquired immense Riches. The Salts of this Kind have this Advantage peculiar to themselves, that, in consequence of the great Subtlety of their saline Parts, they penetrate more effectually into the Mass of Blood than other Salts, and powerfully evacuate the peccant Humours by Urine.

We have already shewn, that almost all the neutral Salts, especially those of a bitterish Taste, are possessed of a very considerable and powerful purgative Quality; and we affirm, that they produce this Effect by stimulating the nervous and muscular Coats of the Intestines, and by that means increasing their peristaltic Motion. It may by some be objected, that by many Medicines not only destitute of a saline and bitterish Taste, but, also, entirely insipid, the Intestines are, also, powerfully stimulated to a Discharge of their Contents, as well as by these Salts, as we observe in the *Magnesia Alba*, an highly fine, insipid, and whitish Powder, apparently destitute of every stimulating Quality: But the *Magnesia Alba* does not produce this Effect, in consequence of the earthy and alkaline Principle of which it consists; but because this Medicine not only produces a violent Effervescence with any Acid, but is dissolved by it, and in the Solution acquires a more saline bitterish Taste than that of any other earthy Alkali, whether Crabs-eyes, Shells, or Egg-shells. From this Circumstance we may conclude, that the *Magnesia Alba* only proves purgative, when, being dissolved by the Acid in the Primæ Viæ, it is converted into a neutral Salt; and this is confirmed by Experience, since hypochondriac Patients are excellently purged by it; but not those whose Stomachs are full of a thick and viscid Phlegm.

From what has been said, I think 'tis obvious, that neutral Salts are of great Efficacy in the Cure of Diseases, possessed of an aperient and detergent Quality, capable of promoting all the Excretions, and, when exhibited in large Doses, of a cathartic Quality. 'Tis, also, sufficiently obvious, that Salts of this Kind are, of all others, the most salutary, and so friendly to Nature, that the Physician can neither practise successfully without them, nor easily produce any bad Effects by using them. But I foresee, that many Objections may be made to this Doctrine, since both Experience, and accurate Observation, convince us, that those Medicines which are highly acid, as, also, volatile, urinous, and fixed alkaline Remedies, are so far from being unsalutary and unfriendly to the Constitution, that they may be said to be the most safe of any. But to this I answer, that neither acid nor alkaline Medicines, whether of the fix'd or volatile Kind, ever produce a salutary Effect, unless by the internal Disposition of the Humours, especially those lodged in the Primæ Viæ, they are converted into a neutral Salt, and by that means render'd friendly to the solid as well as fluid Parts of the human Body.

For this Reason, when a large Quantity of Bile, especially of an alkaline and oleous Kind, is collected, and becomes stagnant, in the Flexure of the Duodenum, strongly affects the nervous System, and by that means often produces bilious Vomiting, Nausea, Loss of Appetite, hectic Heats, Cephalalgias, and an insatiable Thirst, then acidulated Liquors, such as Julaps, Refrigerants, or other acid mineral Spirits edulcorated, are of singular Service. Besides, when an intense febrile Heat, arising from a violent intestine Motion of the sulphureous Parts of the Blood, by destroying its temperate and due Texture, exhausts the Body, and impairs the Strength, Acids are, in such Cases, more beneficial than neutral Salts, alkaline Substances, or any other Remedies, because they are capable of fixing and subduing the sulphureous Particles, by whose Motion the Heat is produced. In malignant Disorders arising from a Putrefaction of the Humours, more Relief is to be expected from Acids than from any other Remedies, because a Putrefaction not only generates an Alkali, but, also, proceeds from a large Quantity of it: And, when this Alkali is corrected and subdued by an Acid, the Putrefaction is forthwith stopt. In inveterate Scurvies, and arthritic Disorders, large Quantities of Salts are generated in the Mass of Blood, which approach more nearly



to an alkaline and lixivious, than to a neutral Nature. Hence the Blood of such Persons, when taken from the Veins, appears thin and florid, and their Urine is, for the most part, highly red, saline, and lixivious. And Experience teaches us, that, in such Cases, more happy Effects are often produced by temperate Acids, than by alkaline, urinous, and volatile Medicines, or those of an hot and spirituous Nature.

Those Medicines which abound with an alkaline Salt, whether of the fix'd or volatile Kind, are by no means to be promiscuously and indiscriminately used, tho' they are of singular Service, when prudently exhibited; for when a Redundance of acid Humours is lodged in the Primæ Viæ, and excites violent Symptoms, as we observe in hypochondriac, hysteric, and melancholic Patients, such as Corrosions of the Stomach and Intestines, Anxieties, Inflations of the Stomach attended with a Cardialgia, Coughs accompanied with Pain of the Stomach, Cephalalgias, excessive Costiveness, or preternatural Looseness, accompanied with a Tenesmus, in these Cases, certainly, earthy Alkalines, and especially Crabs-eyes, prepared Shells, or Oil of Tartar *per Deliquium* alone, will produce more happy Effects, than any other Medicines, because by absorbing the Acid they convert it into a neutral Salt, which is afterwards easily carried through the excretory Ducts, without exciting any violent Symptom. But if there is rather a Defect than a Redundance of Acid in the Primæ Viæ, and if these are full of viscid and tenacious Humours, alkaline earthy Substances, taken in large Quantities, are highly prejudicial; for since they are not dissolved, they rather, by uniting with the earthy and slimy Particles, augment the Quantity of the Phlegm, and by that means destroy the Appetite, load the Stomach, obstruct the Mouths of the lacteal Vessels, and render the Patient costive. *Hoffman.*

NEUTHA. A Pellicle covering the Eyes, or Ears, or the whole Face of a Child in the Birth.

NHAMBI, *Brafilienfis*, Marggr. An acrimonious Plant with a naked Flower, and a ligneous, geniculated Stalk, which creeps like Purslane, and takes Root from Place to Place by its Fibres: The Leaves, chewed, have a pungent Taste, like Mustard, or Nasturtium.

The Leaves, or Seeds, rubbed upon the Top of a Bubo, speedily remove it. An Ounce and an half of the Seeds, drank in Wine, are an excellent Remedy against the Wounds inflicted by any venomous Animals whatever; or the Decoction of the like Quantity of its Seeds may be drank with an equal Quantity of Wine. The Herb itself is generally boiled with Fish, and is very proper for that Purpose. *Raii Hist. Plant.*

NHANDU *feu Piper caudatum*. Marcg. Pison.

This is a small Shrub, which is produced in some Woods of *Brazil*, and bears a Species of Katkins, full of round blackish Seeds, as large as those of the Poppy, and of an acrid Taste like that of the best Oriental Pepper.

The Leaves of this Plant cure Ulcers of the Legs: Its Root is beneficial in Apoplems; and, as both are very strong, they are proper for Baths in cold Disorders, even after they are dried, and kept for a considerable Time. A Decoction of the Roots and Suckers dissolves and incises thick and viscid Humours, and cures a Dropsy of the Feet. *Raii Hist. Plant.*

NHUA *Brafilienfis* Marcgrav. L. 3. C. 4. Otherwise called *Prunifera Brafilensis, fructu rotundo albescente*.

When the Fruit is ripe, it falls off, is gathered and eaten by the Inhabitants of those Countries in which the Tree is produced; but I find no medicinal Virtues ascribed to it. *Raii Hist. Plant.*

NICARION. The Name of a Collyrium, described by *Actius, Tetrabib. 2. Serm. 4. Cap. 113.*

NICCOLUS. The Name of a Gem, to which some superstitious Virtues are ascribed. *Castellus* from *Chioccus*.

NICEPHORI PASTILLUS. The Name of a Troche described by *N. Myrepsus, Sect. 41. Cap. 29.*

NICODEMI OLEUM. The Oil of *Nicodemus*.

Take of the Seeds or Tops of St. John's-wort, and old Turpentine, each one Pound; Litharge, six Drams; Hepatic, Aloes, and Tutty, of each three Drams; of Saffron, one Ounce, of White-wine, four Pounds; and of old Oil, two Pounds: Let them digest together in the Sun for a sufficient time; then boil, and strain off the Oil. *Old College Dispensatory.*

NICOLAI EMPLASTRUM. The Name of a Plaister described by *Paulus Aegineta, Lib. 7. Cap. 17.*

NICOLAUS MYREPSUS. This Author, says *Dr. Freind*, was the last of the Greek Writers, if we may reckon such an impure Style, as he uses, Greek; who, indeed, has taken the Pains to collect together, by way of Dispensatory, the several compound Medicines, which we find dispersed in the Greek and Arabian Writers. It is very certain, that *Myrepsus* compiled this Work before 1300. for not only *Petrus de Abano*, the famous Conciliator, who died in 1316. but *M. Sylvaticus* and *F. Pedemontanus*, both Physicians to Robert King of Sicily, and who

wrote very early in his Reign, which began in 1310. by Name refer to several Receipts, which we find in him.

The Works of this Author, which relate to the Composition of Medicines, and are divided into forty-eight Sections, were never published in Greek; but were translated into Latin, and illustrated with Notes, by *Leonardus Fuchs*. This Translation, though none of the most correct, has, however, undergone several Editions; one, for Instance, at *Basil*, in the Year 1549. *Fol.* another at *Lyons*, in 1550. *Octav.* another at *Frankfort*, in 1626. *Octav.* another among the *Medicæ Artis Principes* of *Stephens*, in 1567. *Fol.* and another at *Noremburg*, in 1658. *Octav.* with a Preface, by *Johannes Hartmannus Beyerus*, which is the best Edition of all hitherto extant. *Fabr. Bibl. Græc.*

NICON, or NINORS. Barbarous Names for Hellebore. *Castellus.*

NICOTIANA.

The Characters are;

The Root is annual; the Calyx is either long and tubulous, and so divided into five long and acute Segments, or else short and wide, and then divided into five Segments, which are obtuse. The Flower is monopetalous, Funnel-shaped, and cut either into five deep and acute Segments, which expand like a Star, or into five short and obtuse ones; and is furnished with five Stamina. The Fruit is membranaceous, oblong, or roundish, and divided by an Interclosure into two Capsulæ, or Cells.

*Boerhaave* mentions four Species of this Plant; which are,

1. *Nicotiana*; major; latifolia. *C. B. P.* 169. *Tourn. Inst.* 117. *Boerb. Ind. alt.* 230. *Nicotiana*, *Petum*, *Tabacum*. *Offic. Nicotiana major, five Tabacum majus.* *J. B.* 3. 629. *Tabacco latifolium.* *Park. Parad.* 363. *Raii Hist.* 1. 717. *Tabacum, Nicotiana.* *Chab.* 526. *Petum five Tabacum.* *Pison.* 206. *Hyoscyamus Peruvianus.* *Ger.* 285. *Emac.* 357. TOBACCO. *Dale.*

Tobacco has very large, broad, softish, and clammy green Leaves, two Feet long, and sharp-pointed at the Ends; the Stalk is about as thick as one's Thumb, round, and somewhat hairy, beset alternately with the like, but smaller, Leaves, without Footstalks. The Flowers grow on the Tops of the Stalks, of a pale-red Colour, in Shape of long hollow Tubes, with the Brims spread out into five Segments. The Seed-vessels are long and round-pointed, divided into two Parts, full of a great Number of very small brown Seeds. It is sown in the Spring, and flowers in July and August. The Leaves are used.

Much has been said upon this Plant, by several Authors, particular Treatises having been wrote about it. The green Leaves are used only in Oils and Ointments, and are accounted good for Wounds, Ulcers, Inflammations, Tumors, Piles, and the King's Evil. The dried Leaves are a strong Emetic, but ought to be used with the utmost Caution, by reason of their violent Working; chewed in the Mouth, it evacuates a great deal of Phlegm, as well as smoked in a Pipe, in which vast Quantities are consumed, the greatest Part by way of Amusement, though some commend it as an Helper of Digestion. Many extol it as a Preservative against the Plague; but *Rivinus* says, that, in the Plague of *Leipsic*, several died, who were great Smokers of Tobacco. The distilled Oil is of a poisonous Nature; a Drop of it, taken inwardly, will destroy a Cat: It is sometimes put into an hollow Tooth, to cure the Tooth-ach. A Decoction of the Leaves helps the Itch, and other cutaneous Distempers; the Dust destroys Fleas, Lice, and other troublesome Vermin, the Dealers in Tobacco being seldom troubled with them. *Miller's Bot. Off.*

Tobacco, beat well with Vinegar or Brandy, into a Mash, and applied in a Linen Rag on the Stomach, occasions strong Vomiting, and has sometimes very good Effects in removing hard Tumors of the Hypochondria. I know two Instances of its making a complete Cure: One is, of an old Man, who, by sleeping in the open Air, while the Serenadas, or Night-dews, fell, was taken, in the *West-Indies*, with a Numbness of his whole Body, which soon was followed with Purging and Vomiting; and these going off, he had all the Symptoms of Jaundice, and Hardness, and Pain, under the short Ribs of the Left Side. The Pain went off in a few Days, but the Tumor increased. After he had used Variety of Medicines, for five Years, to remove this Disease, a Sea Surgeon applied a Poultrice of Tobacco, disguised with Green Tea, Sugar, and Cochineal, upon the Epigastrium and Hypochondria. After this Application had been made four or five Hours, he vomited a great deal of purulent Matter. When the Poultrice was taken away, the Vomiting ceased. He continued to apply this Mash once a Day for a Month, and was perfectly cured. The other Example is of a Boy, who was cured, much in the same manner, of an hard indolent Tumor of the Left Hypochondrium.

The Man had six Ounces of Tobacco in his Poultrice; the Boy had only one; and the Quantity must always be regulated by the Age of the Patient. *Mr. John Stedman*, from the *Medical Essays*, Vol. 2.

As *Nicolaus Monardus*, in his *Simpl. Med. Histor. Cap. 14.* has given a fuller and more ample Account of Tobacco, than any other Botanist, we shall, as briefly as possible, exhibit his Sentiments, with respect to this Plant.



Its true Name, therefore, among the *Indians*, is *Picelt*; for it was called Tobacco, by the *Spaniards*, from a certain Island of that Name, in which it is produced in great Quantities.

It rises to a great Height, so as sometimes to equal the *Malus Assyria*, commonly called the Lemon-tree: Its Trunk is streight, with many large Ramifications springing out from it: Its Leaf is almost like that of the *Malus Assyria*, but larger, of a faint-green Colour, like that of the Leaf of the sharp-pointed Dock; and somewhat hairy, as the whole Plant itself is: On the Extremities of its Branches it bears a Flower, resembling a small Bell, of a whitish Colour, and in the Middle somewhat inclined to that of a Purple. When this Flower falls off, it is succeeded by a Fruit, resembling the Heads of the black Poppy, and in which a small Seed, of a blackish and cineritious Colour, is contained. Its Root is divided into many Branches, is of a woody Contexture within, of the Colour of Saffron, and of a bitter Taste: Its Bark is easily taken off; but we know of no medicinal Virtues ascribed to it.

It grows in most Parts of the *Indies*, but thrives best in moist and shady Places, where the Soil is light and uncultivated: It may be planted at all Seasons of the Year; but, when it appears above-ground, is to be carefully preserved from Cold: It is a great Ornament to Walls, because, like the Citron-tree, it retains its Verdure through the whole Year.

This Plant was formerly used by the *Indians*, especially the Inhabitants of *New Spain*, for curing Wounds; and first, when it was imported into *Spain*, it was more used for adorning Gardens, than admired for its medicinal Virtues: But now the Scene is changed, and the Plant become far more famous on the latter than on the former Account; for it is of an heating, resolvent, cleanting, and somewhat astringent Virtue.

Its Leaves, if applied warm, and frequently renewed, are an efficacious Remedy in Cephalæas, and Hemicranias arising from a cold Cause, or Flatulencies, as, also, in a Stiffness of the Neck, or Tetanus, and in Pains of the whole Body, arising from the same Causes. Some anoint the Part affected with Oil of Orange-flowers, before the Application of these Leaves.

By cleansing the Teeth affected with a Linen Cloth, dipt in the Juice of Tobacco, and wrapping up the Leaf, in form of a Peel, to be put into their Cavities, Tooth-achs are not only removed, but, also, the spreading of the Corruption prevented.

A Decoction of the Leaves with Water, and a Linctus prepared of this Decoction, are beneficial in Disorders of the Breast, inveterate Coughs, Asthmas, and other Disorders arising from a cold Cause. A Syrup prepared of Sugar, and a Decoction of the Leaves, promotes the Expectoration of putrid Humours: The Smoke, also, of Tobacco is sometimes beneficial to asthmatic Patients, but necessary Evacuations must be previously made, if the State of the Patients will admit of it.

The Leaves, if heated under the Ashes, and frequently applied to the Stomach, before the Ashes are wiped off, are beneficial to those who labour under Chilness and Flatulences. Others, after anointing their Hands with Oil, rub the Leaves between them, and apply them to the Region of the Stomach, for the same Purpose. The Leaves triturated with a little Vinegar, and applied for a considerable time, are beneficial in Obstructions and Scirrhuses of the Stomach and Spleen; but over these Leaves there is a Linen Cloth dipt in the warm Juice of Tobacco, to be daily applied. If Tobacco cannot be had, Snuff may be mixed with any common aperient Ointment, with which the Part obstructed, or swelled, is to be for a considerable time anointed.

The *Indian* Women greatly extol Tobacco in Crudities of the Stomach, whether in Children or Adults; for they first anoint the Abdomen with Lamp-oil, and, heating the Leaves under the Ashes, apply some of them to the Region of the Stomach, and others to the Back, in that Part most contiguous to the Stomach; by which means the Crudities are concocted, and the Body rendered soluble, if the Application is repeated, as often as is necessary. A small Quantity of the Juice of Tobacco, boiled with Sugar, kills flat and round Worms from the Intestines. But, in this Case, the Leaves, when triturated, are to be applied to the Navel, and a Clyster is to be injected.

The Leaves, when heated in the manner already mention'd, and applied as hot as the Patient can possibly bear, afford great Relief in nephritic and flatulent Pains: They are, also, a proper Ingredient in Clysters, Fomentations, and Plaisters, designed for certain Purposes.

When render'd sufficiently hot, and applied to the Navel, and Region of the Uterus, these Leaves afford present Relief in Suffocations of the Matrix; and, if a Deliquium should ensue, the Smoke of them is to be blown into the Nostrils; by which means the Patient will be forthwith recovered. This Piece of Practice is so common among the *Indian* Women, that, for this Purpose, they preserve and highly esteem Leaves of Tobacco. Some of them, before the Application of these Leaves, apply fragrant Substances to the Navel, the most considerable of which are Lacamahac, Oil of liquid Amber, Balm of *Gilead*, Caran-na, or a Plaister made of all these, and wore constantly on the Navel.

In Pains of the Joints, arising from cold Humours, or, at least, such as are not very hot, the warm Leaves of Tobacco are efficaciously applied, or a Linen Cloth dipt in the warm Juice; for these resolve and digest the Humours: For which Reason the warm Leaves are successfully applied to cedematous Tumors, previously washed with warm Tobacco-juice.

It is certain from Experience, that Chilblanes are cured by rubbing them three or four times with Tobacco-leaves, and then washing the Hands or Feet with warm Water and Salt.

Some have found from Experience, that they resist the Poison with which the Canibals tinge their Arrows; whereas, before, it was customary to sprinkle Sublimate in the Wounds inflicted by that means. For this Purpose, the expressed Juice is to be poured into the Wounds, and the triturated Leaves afterwards applied.

When applied to poisonous and pestilential Carbuncles, the Leaves induce a Crust, and promote a Cure: They are, also, a present Remedy for the Stings and Bites of poisonous Animals.

When applied to recent Wounds, they stop the Effusion of Blood, and conglutinate them; but, if the Wounds are considerably large, their Lips are to be brought into Contact; after which the Juice of Tobacco is to be poured upon them, and the triturated Leaves applied, and secured upon the Wounds: On the remaining Days, the same Method of Dressing is to be used, and a proper Regimen observed.

*Nicolaus Monardus* informs us, that he knew a Man afflicted with Ulcers of the Nose, which discharged a Sanies seemingly of a contagious Quality: By his Advice, the Patient dropt Tobacco-juice into his Nostrils; after the second Instillation of this Liquor, a large Quantity of Worms fell out of the Nostrils, then a smaller Quantity, and, a few Days after, he was cured, though the corroded Parts were not repaired. *Monardus* also cures Impetigos, and scald Heads, with the Leaves, also, proves beneficial. *Nicol. Monardus*.

Smoking Tobacco produces a Discharge of Phlegm, and dries Catarrhs: Hence, by evacuating the Glands of the Mouth and Fauces, it proves beneficial in a Tooth-ach, and a Pain of the Head; but, as it is heating and drying, it is so far from being useful, that it is rather hurtful, to Persons of hot, bilious, and lean Constitutions; which, says *Mr. Ray*, I myself have experienced, except when afflicted with a Tooth-ach, or when the Fauces were turgid with Humours.

Some condemn Smoking: Thus *Caspar Hoffman* informs us, that he was told by the Soldiers, who had lived for some time in *Holland*, that they saw the internal Parts of the Cranium of Malefactors black, when their Heads were dissected; and that he was informed by a certain Soldier, who served in the last War against *Bohemia*, that all the *Englishmen* slain had their Craniums in a like Condition, because the *Hollanders* and *English* are much addicted to the Smoking of Tobacco. The same, says *Mr. Ray*, was asserted to me by *Mr. Boucharet*, an Apothecary of *London*.

But if these Facts were true, which, however, I have some Reason to doubt, yet it does not hence follow, that Smoking is prejudicial; since there are many Persons, who have smoked copiously every Day, for many Years, remain sound and healthy to an extreme old Age, without ever sustaining any Injury, but rather reaping Advantage, from that Practice; for, in some, it strengthens the Stomach, and promotes the Concoction of the Aliments; in others it renders the Body gently soluble; and others use it for the sake of Amusement, without either Injury or Benefit.

According to *Hernandez*, taking Snuff renders the Person, who uses it, less sensible of Blows, or any kind of Punishment, augments the Courage, and makes Persons more fit for enduring Labour and Fatigue: But it is not to be used to Excess.

The green Leaves of Tobacco, bruised and applied, alleviate Gout Pains, and are of a narcotic Quality. The Juice, also, of Tobacco, or the green Leaves, applied, remove the Heat, and cure the Pustules, excited by Nettles.

*Joan. Torrentius*, in his Notes upon *Fernandez*, gives us a singular Method of purging the Brain, which he received from a Capuchin, who asserted, that by its means he had freed many from the Gout.

As much of the dried Leaves of Tobacco are to be taken, as may be contained in a Walnut-shell; and, compressing the Tobacco with the Fingers, it is to be put into a Piece of clean Linen, or Silk, wrapt up into a Nodulus, as large as an Hazel-nut, and bound hard with a Thread. This Nodulus is put into the Mouth, and, by means of the Tongue, applied to the Palate for half an Hour: Upon which a tenacious Phlegm is immediately discharged, so tough as to hang from the Mouth like a Thread. And though by this means a slight Vertigo is produced, yet it is soon removed, and is entirely inoffensive, unless the Brain is of an highly warm Nature.

Some, in consequence of the narcotic Quality of Tobacco, affirm that it is of a cold Quality; but that it is hot, is sufficiently obvious.



obvious from its resinous grateful Smell, its Acrimony, by which it heats the Fauces, and its vomiting almost as powerfully as Hellebore, as is certain from the Experience of many: Besides, according to *Joan. Torrentius*, there is no Narcotic as yet known, which is not of an hot Quality.

The Use of the Water, distilled from the green Leaves of Tobacco, powerfully removes Stones firmly lodged in the Kidneys. *Chefneau ex Zacut. Lib. 2. Prax. Mirand. Obs. 66. ex Collectaneis D. Hulfe.*

Tobacco sufficiently calcined in a Crucible, and put into the Cavities of the affected Teeth, immediately removes the Tooth-ach, as I myself, says Mr. *Chefneau*, have frequently experienced.

A Drop or two of the Oil of Tobacco, put upon the Tongue of a Cat, or any other Animal, quickly kill it. But *Francis Rhedi* observes, that all Animals are not killed by this Oil, and that all the Animals it produces this Effect upon, are not equally soon destroyed by it; because there are great Differences between various Tobaccos, and between the several Animals on which this Oil acts. *Dr. Tancred Robinson.*

Surgeons sometimes use this Oil, in order to induce a Torpor, when they amputate Limbs. *Dr. Palmer, è Dictatis D. Hartmanni.*

I recommend the Use of Tobacco in the Plague; for, by its means, I myself was freed from that Misfortune; and almost all the Houses, both of *London*, and *Nimwegen* in *Gelderland*, where Tobacco was sold, were free from the Contagion, though the Inhabitants of the adjacent Houses were infected. *Diemerbroeck de Peste, ex Adversariis D. Tancred Robinson.*

In order to cure a Palsy, infuse the green Leaves of Tobacco in Malmsey-wine; and, after Sweating, rub the paralytic Parts with this Wine, which is preferable to all other external Medicines. *Hartmannus.* This was communicated to me by the ingenious *Dr. Edward Hulfe.*

*Anton. Recchus* informs us, that the Smoke of Tobacco, blown into the Uterus, in a Suffocation of that Part, in a Difficulty of Breathing, Straitness about the Præcordia, and Synopes, produces very happy and instantaneous Effects. *Ex Excerptis D. Hulfe.*

The Leaves of Tobacco, rubbed on the Hand, or a Piece of Paper, or Linen, produce a beautiful green Colour. *D. Meret. in Not. ad Anton. Neri.*

An Instance of a violent Vomiting, constantly produced by sprinkling Snuff upon a contused and lacerated Thigh, is found in *Ephem. German. An. 12. Obs. 108.*

I once saw a Gentleman of Distinction so fat, that he could neither move from Place to Place, nor sit on Horseback, without immediately falling asleep; but he soon became able to do both, being restored to his natural Size by chewing Tobacco, as he himself assured me; for this Plant is beneficial for phlegmatic and cold Constitutions. *Borelli, Cent. 2. Obs. 11.*

But chewing Tobacco has not always the same Effect on all Persons; for I know a Gentleman preternaturally fat, who was render'd no leaner by its Use; but he told me, that his Teeth, which were formerly loose, were fixed by that means.

I knew three robust young Men freed from Dysenteries, by drinking a Decoction of Tobacco, which by its violent Operation totally evacuated the Cause of the Disorder, and produced the Effects of an Anodyne and Narcotic. *Diemerbroeck, Obs. Medic. Obs. 19.* But though, in these Patients, this Medicine produced salutary Effects, yet I think it hardly advisable, promiscuously to exhibit a Decoction of Tobacco to all dysenteric Patients, because it operates very violently, both by Vomit and Stool.

*Willis* recommends the Use of Tobacco in Camps, because by its means the Scarcity of Provision may be supplied, and the Men render'd less sensible of Fatigue and Danger: It is, likewise, efficacious, not only in preventing, but, also, in curing some of the Disorders which most generally rage in Camps, such as Colics, Diarrhœas, Ulcers, and Pains of the Head and Joints. *Raii Hist. Plant.*

The various Abuses of Tobacco are so numerous, that it would be too tedious to enumerate them all. The Curious, however, may consult *Simon Pauli de Abusu Tabaci.*

The Cases, also, in which this Plant is proper and improper, are so various and perplexing, that great Skill and Judgment are requisite, to determine when it is to be used, and when not.

It is, however, universally granted, that an excessive Use of this Plant, or any of its Preparations, never fails to be productive of bad Effects. But as the precise Quantity proper for each Constitution cannot be determined, so this Excess can only be estimated by the Effects produced by it; so that it seems to be a kind of Absurdity, to lay down general Rules, either with respect to the Use or Abuse of Tobacco.

2. *Nicotiana*; major; angustifolia. *C. B. P. 170. Nicotiana frve Tabacum, folio angustiore. J. B. 3. 630. Hyoscyami Peruviani altera. Icon. Dod. p. 452.*

3. *Nicotiana*; minor. *C. B. P. 170. Tourn. Inst. 117. Boerb. Ind. A. 230. Petum Rivini. Rupp. Flor. Jen. 19. Petum Anglicanum. Pharm. Bat. 161. Tobacco Anglicum. Park. Theat. 711. Priapeia quibusdam, Nicotiana minor. J. B. 3. 630. Chab. 527*  
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(*Figura transposita*). *Raii Hist. 1. 715. Hyoscyamus luteus. Germ. 284. Emac. 256. Hyoscyamus, flore luteo. Rivin. Irr. Mon. 103. ENGLISH TOBACCO.*

This is a lower and smaller Plant than the first, the Stalks are round and hairy, two or three Feet high. The lower Leaves are pretty large, oval, and round-pointed, and clammy in handling; they are much less than the first; those which grow on the Stalks, are smaller, set on alternately. The Flowers are hollow, and Cup-fashion'd, with the Brim cut into five Parts, of a yellowish-green Colour, set in hairy Calyces. The Seed is rather bigger than the first Sort, growing in a Seed-vessel, which, by some Persons, is compared to the Glans of the Penis, whence it is sometimes called *Priapeia*: It is sown in Gardens, flowering in *July* and *August*.

This Tobacco is not so much used as the first Sort, as being believed to have less Strength and Virtue, though it is too frequently sold by the Herb-women for that, being, as I suppose more easily propagated; the Leaves of this they, also, usually sell for those of *Amandragora*, in the *Unguentum Populeon. Miller's Bot. Off.*

4. *Nicotiana*; minor; foliis angustioribus amplioribus. *Vaill. Boerb. Ind. alt. Plant.*

NIDOR. The Smell of burnt animal Substances. Hence Eructations, which have a Savour like putrefy'd Flesh, are call'd *nidorous*.

NIENGHALA. A Name for the *Methonica*; *Malabarorum*.

NIGELLA.

The Characters are;

The Root is annual; the Leaves are capillaceous; the Calyx generally consists of five very thin, and very branched small Leaves, which expand in form of a Star. The Flower is rosaceous, pentapetalous, or polypetalous, and furnished with numerous short Stamina, from the joining of the Placenta and Ovary, a Multitude of Corpuscles interposing, in the Form of a monopetalous, anomalous, and bilabiated Floscule. The Ovary, which adheres to the Placenta, consists of many Pods furnished with a crooked Tube; and becomes at last a membranaceous, roundish, or oblong Fruit, consisting of many Capsules, or Cells, horned at the Top, and full of numerous Seeds.

*Boerhaave* mentions ten Species of this Plant; which are,

1. *Nigella*; arvensis; cornuta. *C. B. P. 145. Raii Hist. 2. 1070. Tourn. Inst. 258. Boerb. Ind. A. 283. Melanthium. Offic. Melanthium sylvestre frve arvense. J. B. 3. 202. Nigella arvensis. Park. Theat. 1376. WILD FENNEL-FLOWER.*

The Seed of this Plant is used to dissolve the viscous Matters, which, gathering in the Sinuses of the Head, produce Catarrhs. For this Purpose, infuse a Pugil of Marjoram-leaves in a Glass of White-wine; and add a Dram of *Nigella* Seeds; strain the Whole thro' a Linen Cloth, and snuff the Wine strongly up the Nose. For the Colic, a Pisan is made of the Tops of Chamomile, Melilot, and *Nigella* Seeds. The essential Oil has the same Virtues: It is very incisive and expectorating. The Infusion of the same Seeds, in Wine, is diuretic, and provokes the Menfes. *Martyn's Tournesfort.*

2. *Nigella*; latifolia; flore majore; simplici; cœruleo. *C. B. P. 145. Prodr. 75. Melanthium, Hispanicum, majus. H. Eyft. Ælt. o. 2. F. 12. Fig. 1.*

3. *Nigella*; angustifolia; flore majore, simplici, cœruleo. *C. B. P. 145. Melanthium, capite & folio majore. J. B. 3. 207.*

4. *Melanthium*; flore majore, pleno, cœruleo. *C. B. P. 145. Melanthium, capite vel calice, & flore majore, pleno. J. B. 3. 208.*

5. *Nigella*; flore minore, simplici, candido. *C. B. P. 145. Raii Hist. 1071. Tourn. Inst. 258. Boerb. Ind. A. 283. Nigella, Gith. Offic. Nigella Romana frve sativa. Park. Theat. 1375. Melanthium. Ger. 924. Emac. 1084. Melanthium calyce & flore minore, semine nigro. J. B. 3. 208. FENNEL-FLOWER.*

This Plant has a small sticky Root, which perishes every Year, after ripening the Seed. The Stalk arises to be a Foot and an half, or two Feet high, hollow, branch'd, and channel'd, having several finely laciniated Leaves, pretty much resembling those of Lark-spurs, set alternately on them. The Flowers grow on the End of the Branches, of five small white, sharp-pointed Leaves apiece, with several Stamina in the Middle; and are succeeded by oblong, round, horn'd Heads, having on their Tops five or six crooked Horns; the Seed is black, and somewhat sweet; it is sown in Gardens; and flowers in *June* and *July*. The Seed only is used.

It is accounted heating and drying, and serviceable, as an Er-rhine, to discharge tough mucous Phlegm from the Head, and recover the lost Sense of Smelling; it is said, also, to provoke Urine, and to help Tertian and Quartan Agues; but it is seldom used. *Miller's Bot. Off.*

The Seed of *Nigella* is principally used in Medicine; as, for Instance, in resolving and expectorating the Mucilage of the Lungs, for increasing Milk, for provoking Urine, and the Menfes, and against the Bites of venomous Animals; it is esteemed in Quartan and Quotidian Fevers. Outwardly, it is of frequent Use in Cucuphas, Epithems, and the like Applications for easing the Head-ach, and drying up of Rheums. *Schroder.*



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The Root has a peculiar Property of stopping Hæmorrhages, being chewed in the Mouth, and intruded into the Nostrils. The Seeds afford an Oil by Expression, which many ignorant Apothecaries, by a pernicious Error, make use of instead of Oil of Nard. The green Seeds abound with an excrementitious Humidity, and therefore are not taken inwardly with Safety, as *Tragus* observes. For this Reason, says *C. Hoffman*, they are to be carefully dry'd, after washing, as well as the Seeds of Caraways and *Melanthium*: On the same account, they are rather used parched, than crude, in Catarrhs, and Colds, in which Cases they are of admirable Service, when parched or burnt. In such Disorders, I recommend the following Nodus.

Take Seeds of *Nigella* parched, Tobacco, *Styrax Calamita*, each one Scruple; Ambergrise, two Grains: Mix them, and tie them up in a fine red Linen Cloth, to be held to the Nostrils at Intervals. *S. Pauli*.

For Loss of Smelling, take of Roman *Nigella*, a sufficient Quantity: Reduce it to Powder, and work it with old Oil in a Mortar. Let the Patient, with his Head held backward, and his Mouth full of Water, receive this Liquor into his Nostrils, drawing up his Breath. *Galen*.

For a noble Lady, very subject to a Coryza, I prescribed the following Nodus.

Take Seeds of *Nigella* parched, half an Ounce; Abelmofch, Leaves of Caraways and Marjoram, each two Drams; *Styrax Calamita*, Tobacco, each one Dram; Ambergrise, seven Grains: Mix them, and tie them up into a Nodus.

By the Use of this Remedy, the Lady preserved herself, for the future, free from all manner of Catarrhs and Coryzas, to which she was before very subject. *S. Pauli*.

The Flowers of *Nigella*, tho' of a Sky-blue, yet rub'd with the Hands on Paper, or Linen, dye them of a beautiful green Colour. *Raii Hist. Plant*.

6. *Nigella*; *Orientalis*, flore flavo; semine alato, plano. *T. Cor.* 19.

7. *Nigella*; *Cretica*. *C. B. P.* 146. *Prodr.* 75. *M. H.* 3. 515.

8. *Nigella*; *Cretica*; *latifolia*; odorata. *Park. Theat.* 1376. *M. H.* 3. 515.

9. *Nigella*; peregrina; flore multiplici. *H. Eyf. Æst.* o. 2. *F.* 16. *Fig.* 1.

10. *Nigella*; flore minore. *Boerb. Ind. alt. Plant.* Vol. 1. p. 283.

It is called *Nigella*, quasi *Nigrella*, from the black Colour of its Seeds; it is, also, named *Melanthium*, that is to say, Black-flower, tho' its Flowers are not black; and *Melasperrum*, that is, Black-seed.

The Virtues of this Plant are aperitive, incisive, resolvent, and heating. It is recommended for the Stone in the Kidneys, and is of excellent Use in intermitting Fevers, and for destroying Worms, the Quantity of two Ounces thereof being boiled in Wine. The Plant is antinephritic and carminative, whence, boiled in Wine, it cures the Colic; the Seeds increase Milk, and promote Excretion by Stool, are of an acrimonious Quality, and are said to stimulate to Venery. *Hist. Plant. adscript. Boerhaav.*

**NIGELLA CRETICA.** A Name for the *Garidella*; *foliis tenuissime divis.*

**NIGELLASTRUM.** A Name for the *Lychnis*; *segetum*, major; and for the *Caridella*; *foliis tenuissime divis.*

**NIGER MORBUS.** See **MORBUS NIGER**.

**NIHIL ALBUM, & GRISEUM.** See **CADMIA**.

**NIIR NOTSJIL** *Malabarensis*. H. M. Otherwise call'd, *Bacifera Malabarica fructu oblongo, tetracocco, caliculato*.

It is a little low Tree, or rather a Shrub, about six Feet in Height, growing in watry Places, and by the Banks of Rivers. The Leaves dry'd and pulveriz'd, and then exhibited every Day with Sugar, in an Infusion of Rice, are said to cure the Lues Venerea. Of the Leaves, boiled and baked in the Yolk of an Egg, is prepared a Cataplasm, which they believe to be of great Service, when apply'd to the Venereal Buboës of the Groin; of the Leaves and Roots boiled in Water, is prepared a Bath, which is supposed to have an extraordinary Effect in the Phrensy, Mania, and other cephalic Affections; and of the Root boiled in Oil, they prepare a Liniment against the Gout. *Raii H. P.*

**NIIR-PONGELION.** H. M. Otherwise call'd, *Arbor siliquosa Indica siliquis longis contortis, in quatuor Cellulas per longum divis.*

It grows to the Height of about ten Feet, and is not unlike a Pear-tree; it delights in a moist and muddy Soil.

The Fruits are delicious Food to the Parrots; of the Branches and Root, they make Fishing-nets, which are preserved in the redish Decoction of the Bark; of the Seeds of the Fruit bruise'd, with dry'd Ginger, and the Root or Fruit of *Pavetta*, and the Washings of Rice, is prepared an excellent Liniment for spasmodic Affections, which the *Malabarians* call *Poddavenera*. *Raii Hist. Plant.*

**NIL.** See **ANIL**, and **INDIGO**.

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**NIL ARABUM.** A Name for the *Convolvulus*; *cæruleus*; *hederaceus*; seu *trifolius*.

**NILA HUMMATU.** A Name for the second and third Species of the *Datura Malabarica*; the first, which is the *Nila hummatu*, *Datura Malabarica secunda Species*, Hort. Mal. differs little from the *Stramonium majus album*; which see described under **STRAMONIUM**.

This Species grows in sundry Places, and flowers all the Year, but principally in the rainy Season.

The Decoction is good for Pains in the Limbs, or for an In-duration thereof, contracted in washing the Body. The Plant, or the Root, boiled in Oil, are good to anoint the Body, under a cold Fever; the Leaves, bruised with Lime, are of Service for anointing the Body, when affected with an Itching. The Decoction of the Leaves and Fruits in Oil mitigates Pains of the Body, being anointed therewith; and the Fruits bruised, the Seeds being taken out, are apply'd with very good Success to Impostumes and Carbuncles. The Seeds, too freely taken, induce a Sopor, and endanger Life. This Plant is of greater Virtue than the *Datura Malabarica Hummatu dicta prima Species*; which see under **STRAMONIUM**. The other Species, under this Name, is the

*Mudela-nila-hummatu, Datura Malabarica tertia Species*. This differs from the former only in the Duplication or Triplication of its Flowers growing one within another. *Raii H. P.*

**NILAMMON.** The Name of a Collyrium, described by *Aetius, Tetrab.* 2. *Serm.* 3. *Cap.* 105.

**NILEI COLLYRIUM.** The Name of a Collyrium in *Celsus, Lib.* 6. *Cap.* 6.

**NILEI EPITHEMA.** The Name of an Epithem mentioned by *Aetius, Tetrab.* 3. *Serm.* 1. *Cap.* 17.

**NILI COLLYRIUM.** The same as the **NILEI COLLYRIUM**. *Aetius, Tetrab.* 2. *Serm.* 3. *Cap.* 108.

**NILIACUM, νιλιακόν.** An Epithet for the best Sort of Honey; that is, *Attic Honey*.

**NILICA-MARAM.** H. M. Otherwise called, *Acacia foliis Malabarica fructu rotundo, semine triangulo*. D. Syen. *An Myrobalanos Emblica?* A kind of *Indian Plum*.

The tender Leaves, or the dry'd Fruit, pulverized, and exhibited in the thick acid Milk, called *Tayr*, is good for the dysenteric Flux; the Decoction of the same is given with Success in an hot Fever; boiled with Sugar, and taken, they cure the Vertigo; the distilled Water of the Fruit is proper to be drank for a preternatural Heat of the Liver. *Raii H. P.*

**NIMBO ACOSTÆ, seu Aria Bepou.** H. M. P. 4. T. 52. p. 107. *Arbor Indica Fraxino similis, Olea fructu*. C. B. *Nimbo folio & fructu Olea*. J. B. t. 1. 1. 6. C. 8. *Azedarach floribus albis sempervirens*. Herman.

A tall Tree growing in the Island of *Zeylan*, and other Countries of the *East Indies*; it resembles an Ash, and bears a Fruit like an Olive, from which they express an Oil, which the Painters use in staining their Cottons. Of the Leaves boiled in Water, they prepare a Bath, which is of Service for driving out the Small-pox, and mitigating Pains of the Joints; of the same, dry'd and pulveriz'd, and mix'd with the expressed Oil of the Fruit, is prepared an Ointment, which is used with Success in anointing such Parts as are affected with Pains, Spasms, or Convulsions; and cures Wounds, Punctures, and Contractions of the Nerves. The Juice of the Leaves, taken either alone, or in Wine, Water, or Cock-broth, or apply'd to the Navel, either alone, or with a little Ox-gall, or Vinegar of Aloes, is of extraordinary Service for expelling all Kinds of Worms; for which Reason it is a most familiar and salutary Remedy to all the Inhabitants of *Malabar*, because they are very subject to Worms. *Garcias* and *Acosta* compare this Tree to the Ash, for Bigness, and external Appearance at a Distance, tho' its Leaves are unlike those of the Ash. *Raii H. P.*

*Karibepou seu Nimbo altera*. H. M. P. 4. T. 53. p. 109.

This is a very tall and beautiful Tree, always green, and bearing Flowers and Fruit twice in a Year; it grows in several Parts of *Malabar*. From the Fruit is expressed an Oil; of the tender Leaves, bruised and boiled in Oil, is prepared a Cataplasm, which heals the Bites of Serpents, and other venomous Animals, being apply'd to the injur'd Part; of the same, boiled with the Leaves of the *Aria Bepou*, is prepared an Apozem, which is very serviceable in pestilential Fevers, and other malignant Diseases; the Root, taken any manner of Way, purges by Stool. *Raii H. P.*

**NINZIN.** A Name for the **GINSENG**; which see.

**NIOPON, νιωπον.** This Word occurs in *Erotian*, and is thought to be a Mistake for **NETOPON, νητωπον**.

**NIRUALA.** H. M. *Pomifera Indica trifolia, fructu Pruni-formi caudato*. *Tapia Brasiliensium similis*. D. Comelin. A Tree of a vast Bigness, and thirty Feet in Height, and growing in rocky and sandy Places, and particularly in the Provinces of *Mangatti* and *Poigu*, in *Malabar*, on the Banks of Rivers.

The Juice of the Leaves, received in Linen, and apply'd to the Groin, provokes Urine. The Leaves bruised, and with Salt, Camphire, and the Dung of a Cat, reduced into the Form of a Cataplasm, and apply'd to the same Parts, produce the same Effect. The Bark, macerated in Water, and, with Ginger and Long-pepper, boil'd in Cows-milk, and Oil of Sesamum, to the Consumption



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Consumption of the Liquor, makes an excellent Liniment for the drying up of cold Humours. The Seed boiled in an Infusion of Rice, and then bruised, and with fresh Butter reduced to a Cataplasm, effectually mollifies and ripens Abscesses. *Raii Hist. Plant.*

**NIRURI.** H. M. *An Frutex Indicus baccifer Vitis Idæ secundæ Clusii Foliis*, Breyn. ? An Indian bacciferous Shrub, seven or eight Feet in Height, growing in sandy Places.

The Root, bruised, and apply'd in the Form of a Cake, is effectual for Inflammations of the Belly, or Tumefactions of any Part. The Leaves, bruised, and apply'd with four Milk, serve to ripen Abscesses; which Purpose is, also, promoted by washing them with warm Water, in which the Leaves and Bark have been bruised. Under this Head, *Ray* reduces the

*Katou Nirouri*, H. M. which is a low Shrub, much like the former, growing in moist and sandy Places about *Cochin*, in the *East Indies*, and having always Leaves, Flowers, and Fruit upon it.

Of the Leaves boiled in common Water, is prepared a Gargarism for the Cure of putrid and corroded Gums, and for fastening loose Teeth. Of the Leaves boiled with the Fruit, Bark, and Root, is prepared a Bath for the Gout. The Bark of the Root, boiled with Long-pepper and Ginger, makes a Drink, which is said to be highly serviceable for strengthening the Stomach, and for cutting and attenuating pituitous Humours. *Raii Hist. Plant.*

**NISI**, or **NINSI**, according to *Blancard*, imports **GINSING**.

**NISSOLIA.** Crimson Grass-vetch.

The Characters are ;

It resembles the *Lathyrus* in every thing, except that the Leaves stand single, and have no Tendrils, but are much like the Leaves of the *Genista Sagittalis*.

*Boerhaave* mentions but one Sort of this Plant; which is, *Nissolia vulgaris*. T. 656. *Lathyrus, sylvestris, minor*. C. B. P. 344. *Catanance, leguminosa, quorumdam*. J. B. 2. 309. *Ervum sylvestre*. Dod. p. 529. *Boerb. Ind. alt. Plant. Vol. 2. p. 25.*

**NISUS.** The Sparrow-hawk. See **ACCIPITER**.

**NITEDULA.** The same as **CICENDELA**; which see.

**NITIALIA.** The Name of a Star, in *Paracelsus*, which he whimsically represents, as having the same Influence as Salt of Vitriol.

**NITRIALES.** All Things capable of reducing to a Calx, as Nitre, Sulphur, &c. *Rulandus*.

**NITRUM.** Nitre.

'Tis certain, that the Nitre of the Antients was different from ours, which being inflammable, and form'd into Crystals, *Striae*, and a kind of Spars, was absolutely unknown to them. Tho' the precise Time in which this artificial Nitre of ours was invented, cannot be positively determined, yet it is not to be doubted, but its Invention laid a Foundation for discovering Gunpowder. There is a very considerable Difference between the Nitre of the Antients, and that of the Moderns. For,

1. The Nitre of the Antients is a native Fossile dug out of the Earth, though not pure, since it must be afterwards elutriated; whereas ours is an artificial Substance produced by the Air. Hence those are mistaken, who affirm, that some Malt Liquors are prepared with nitrous Waters.

2. The Nitre of the Antients is of an alkaline absterfve Quality; for which Reason it may commodiously be used as a Succedaneum for Pot-ash, in making Glafs or Soap. It is produced in *Egypt*, where it is called *Natron*. At *Smyrna* there is, also, a pure alkaline Earth found, which, when boiled, affords an alkaline Salt, exported to other Countries in large Quantities. And *Carolus Clusius, de Exotic. Lib. 2. Observatione Bellon. Cap. 13.* informs us, that in *Grand Cairo* the Nitre of the Antients is so common, that large Quantities of it are sold at a very inconsiderable Price. The *Egyptians* apply this Substance to various Uses, since they coat their Vessels with it, and dress their Leather with a Mixture of it, and the Pods of the *Egyptian Thorn*. But *Bellonius*, in *Lib. 2. Observat. Cap. 21.* informs us, that the Nitre of the Antients is very rare among us; and confidently affirms, that the smallest Quantity of it is not produced in *Europe*, tho' 'tis very common and cheap in *Egypt*. But our Nitre is a *Sal salsum*, neither of the acid, nor of the alkaline, but of the neutral Kind, since it neither produces an Effervescence with acid nor alkaline Substances.

3. The Nitre of the Antients was not combustible and inflammable like ours; for which Reason it was by no means proper for preparing Gunpowder. Considering these Differences, 'tis sufficiently obvious, that when *Hippocrates* and *Pliny*, *Dioscorides* and *Galen*, treat of Nitre and its Virtues, they do not mean our common Nitre, but a native alkaline Salt.

But tho' *Bellonius* affirms, that none of the Nitre of the Antients is produced in *Europe*, yet I am of Opinion, that tho' it is not, in this Quarter of the World, produced in such large Quantities, as in *Egypt*, yet there is even here produced, in the Bowels of the Earth, a pure fixed alkaline Salt, in every respect similar to Pot-ash, Salt of Tartar, or the Nitre of the Antients, as is sufficiently obvious from our medicinal Springs, hot Baths, and mineral Waters, from many of which an highly pure alkaline fix'd Salt may be obtain'd by boiling. Hence appears the Falshood

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of the common Opinion of the modern Chymists, who affirm, that a fixed alkaline Salt is only the Product of Art; or of the Fire, and cannot be obtained, but from Vegetables burnt to Ashes.

Our Nitre is artificially prepared of two Elements or Principles, one of which is the highly simple, universal, acid, and primogenial Salt contained in the Air, and the other an alkaline sulphureous, and pinguious Earth, which like a Matrix, or Loadstone, attracts the universal Acid lodg'd in the Air. Nor are Earths of every Kind, when exposed to the free and open Air, fit for generating Nitre, but only such as are of an alkaline Nature, and contain a pinguious and sulphureous Substance. Hence we find, that the Earths, left after the burning of Houses, are of all others the most proper for generating Nitre. The same holds true of calcareous Substances; when, for Instance, Mud, Earth, or Clay, is mix'd with Lime, and exposed to the free Air, the Salt of Nitre easily breaks thro' it like Froth. Quicklime, also, the Ashes of Wood, or of Soap-boilers, as yet turgid with an alkaline Salt, greatly contribute to the Production of Nitre, when mix'd with Earth.

The Earth proper for generating Nitre must not only be alkaline, but, also, pinguious and sulphureous; nay, a volatile alkaline Principle is necessary for this Purpose. Hence all Putrefaction contributes to the Generation of Nitre in Sands. For this Reason nothing in Nature so powerfully promotes the Generation of Nitre, as dunging the Land with the Excrements and Urine of Animals. Hence those who prepare Nitre, diligently dig up, and preserve the old and squalid Earth in Sheepfolds, Stables, and other Places where Animals are kept. They, also, carefully collect the Earth dug up about Bog-houses, which being impregnated with the Salt and Sulphur of the human Excrements, is, for that Reason, highly proper for producing Nitre.

They, also, chuse pinguious Earths of Church-yards, Ponds, Marshes, and Walls, built of a pinguious Earth, and putrefied Straw, especially their Surfaces taken off for about the Depth of a Finger's-length, because these, being long exposed to the Sun and Air, have conceived a nitrous Salt, discoverable by the acrid and bitterish Taste. Hence it follows, that the more Putrefaction and volatile sulphureous Salt can be convey'd to Earths, the more proper they are for producing Nitre.

Earths, in order to yield a large Quantity of Nitre, must be managed in the following manner: They are to be made up in Heaps, which are to be frequently watered or sprinkled with the Urine of Animals; by which means, and the free Passage of the Air thro' them, they soon contract a nitrous Salt. But 'tis to be observed, that neither a too intense Heat of the Sun, especially such as burns the Earths, nor too pinching a Cold, nor too moist an Atmosphere, and especially rainy Weather, but rather a temperate windy Air, accompany'd with serene Weather, especially in the Spring or Autumn, and in the Night-time, favour the Production of Nitre. The Heat of the Sun is, indeed, serviceable in drying the Earths from which the Nitre has been before extracted, but does not at all contribute to its Generation.

Nor is its Generation promoted by intense Cold, Southerly or Westerly Winds; but Winds blowing from the Easterly or Northerly Quarters bring the primogenial ethereal Acid. The Elaboration of Nitre does by no means succeed under excessive Rains, which wash it out of the Earths.

'Tis, also, to be observed, that from Waters impregnated with a nitrous Salt, by Elixivation, there cannot be obtained any true Nitre, which is inflammable, and forms itself into Crystals, without the Addition of Ashes, in which there is an alkaline Salt, an Admixture of Quicklime, or that Lixivium, which in boiling remains after the Crystallization; for if the Lixivium, drawn from nitrous Earths, is boiled by itself, a saline Magma is only obtain'd, which neither runs into dry, much less inflammable Crystals, nor is easily dried, but is easily dissolv'd in the Air, especially when moist and humid. Hence we may reasonably conclude, that the inflammable Salt of Nitre is compounded of an acid Salt, a fixed Alkali, and a sulphureous Principle.

And as neutral Salts are easily formed into Crystals; so, on the contrary, neither acid nor alkaline Salts, nor sulphureous acid Substances, mix'd with alkaline Earth, of which Kind this Lixivium, extracted from nitrous Earths, seems to be, are disposed to Crystallization.

But that there is in Nitre such a fixed Alkali, is sufficiently obvious, not only from its Generation, already described, but, also, from this, that Powder of Charcoal alone, added to Nitre, fus'd in a Crucible, converts it into a pure alkaline Salt, commonly called Fix'd Nitre, tho' it is not, in reality, different from Salt of Tartar, or any other alkaline Salt; as, also, from this Circumstance, that if this alkaline Salt is again combined with acid Spirit of Nitre, or Aqua-fortis, the Nitre is forthwith regenerated.

Earths impregnated with a nitrous Salt, of which Nitre is prepared, are not only to be found in *Europe*, but 'tis, also, certain, that an inflammable Nitre may be prepared every-where, because the Matter, or Matrix of Nitre, which is Earth, rendered alkaline and sulphureous by Putrefaction, may be had every-where. Neither is it to be doubted, but that primogenial and universal Acid,



Acid, which is formed into a nitrous Salt with the alkaline sulphureous Earth, is contained in the Atmosphere, where-ever it extends.

And, 'tis certain, that not only in the *Indies*, which are hot, but, also, in *Muscovy*, which is a cold Climate, a large Quantity of Nitre is prepared, which is better than the *German* Nitre, and far more fit for preparing Gun-powder. The *Indian* Soil favours the Generation of Nitre, because, for several Months, no Rains fall to wash and carry off the nitrous Salt from the Earth. But, in the Northerly Climates, the Air is not only serene, but its elastic and expansive Portion compressed and condensed by the Cold; for nitrous Salt seems not only to be compounded of an acid, sulphureous, and alkaline Principle, but, also, the Air, condensed into Water, seems to be a principal Ingredient in it; for there is scarce any Salt, such as common Salt, Vitriol, and Alum, which has not, for an Ingredient, an aqueous Principle, call'd Phlegm, and which, in Distillation, is copiously yielded. Hence 'tis not to be doubted, but nitrous Salt has, for Ingredients, both an aqueous, and an aerial Principle, which is principally concealed under a sulphureous Substance.

This may be confirmed by various considerable Proofs; for 'tis surprising, that since no Flame can subsist without the immediate Access and Action of the Air, nitrous Salt should, when most closely shut up from this Fluid, send forth a conspicuous Flame. Hence the Reason is obvious, why in Northerly Countries, and by means of Northerly Winds, a larger Quantity of Nitre is produced, than where the Air is either too much rarefied, or too moist. 'Tis well known to the Preparers of Nitre, that more of this Substance is form'd in its Matrixes in the Night-time, than during the Day, under the Heat of the Sun.

Besides, the Inflammability, and highly-expansive Rarefaction, observed in kindled Nitre, and which increase the Impetus of the Fire and Flame, seem to me to be derived from the aqueous and aerial Particles, inclos'd within the Pores of the pinguious, sulphureous, and saline Parts, which, by means of the Fire, suddenly acquire the highest Degree of Rarefaction and Expansion, and are discharged, as it were, in Wind, just as in an *Æolipyle*, in which Water, when included and rarefied by Fire, is totally discharged in the Form of a dry Wind, with a considerable Noise, thro' a narrow Hole; and this cold Wind, arising from the hot Water, surprisingly augments the Force and Impetus of Flame. Hence Nitre may be justly called an aerial Salt, because it is not only produced by the Air, but, also, because that Fluid, condensed into Moisture, is intimately mixed with it.

Nitre contains various heterogeneous, saline, and earthy Parts, from which it ought to be separated and purified; for, besides its terrestrious, pinguious, and sulphureous Parts, it contains a pure common Salt, or even an Alum, from which, however, the pure and inflammable nitrous Salt ought to be separated; for these foreign Admixtures not only hinder its Deflagration, but, also, diminish its Impetus and Expansion. For this Reason all the Nitre sold in the Shops is to be duly depurated; before it is used for pyrotechnical, chymical, or medicinal Purposes.

This Depuration is to be made in the following manner: The Nitre is to be dissolved by boiling it in a Kettle, with a Quantity of Water sufficient to render it fluid. Then the Lixivium is to be strain'd, and, in a close Vessel, lodged in some cool Place; by which means, on the Surface, and at the Sides of the Vessel, long pyramidal Striae, like so many Rays, are formed, from the Circumference to the Centre, which are to be taken out and dry'd by the Heat of the Sun. Then the remaining lixivial Liquor is to be again boiled by a gentle Heat, strain'd, and again set by for a second Crystallization. Thus a considerable Quantity of Nitre will be again concreted about the Bottom and Sides of the Vessel, and this Method is to be repeated three times; and, last of all, the Lixivium, which contains no more Nitre, is to be inspissated by farther Boiling; by which means a common Salt, highly similar to Sea-salt in its Taste, cubical Figure, and Properties, is concreted, and subsides to the Bottom; and the Remainder of the inspissated Lixivium is coagulated into a Mass of a bitterish Taste, of a brownish Colour, and which has many earthy, pinguious, and sulphureous Particles mix'd with it. This is the most proper Method of depurating Nitre.

The Goodness, therefore, of Nitre differs much, according to the Quantity of impure, saline, and earthy Matter mix'd with it. Some Countries, also, produce purer Nitre than others. The *Indian* and *Muscovy* Nitres are reckoned best, because an hundred Pounds of them, under a depuratory Crystallization, lose only seven Pounds; and that of *Poland*, fifteen Pounds. But the Nitre prepared in the Principality of *Halberstadt*, and the Duchy of *Magdeburg*, loses twenty-five Pounds, before it is fit for making Gunpowder. 'Tis, also, to be observ'd, that all Nitres, if duly and thoroughly depurated and freed from their Sordes, are possess'd of the same Virtues, and produce the same Effects. Hence some depurate and crystallize it several times; and, that it may be the purer, mix Wine-vinegar in the Water, in which it is to be dissolved; for, as there is but one common Salt, so there is but one Nitre in Nature; but the Difference of both depends upon the different Quantities and Qualities of the Sordes, and impure Substances, with which they are mix'd.

But it is, in a particular Manner, worth our Consideration, whence, or by what means, the common Salt, which is generally every-where associated with Nitre, is produced. Many Chymists are of Opinion, that it is produced by the Urine of such Animals as eat common Salt, because the Preparers of Nitre often pour the Urine of such Animals upon the Earths design'd for this Purpose. But this Hypothesis, to me, seems incumbered with various Difficulties; for, first, Animals rarely eat Salt, and Urine is, also, rarely sprinkled on Walls, and the Heaps of nitrous Earth. Secondly, from the Urine of human Creatures, who use large Quantities of Salt, a Salt in every respect like common Salt, can by no means be obtained; for common Salt, taken with the Aliments, and mix'd with the various Particles of the Juices in the Stomach and Intestines, and with the Blood and Serum in the Vessels, is so chang'd, and its Crasis so dissolv'd, that it can hardly be again obtained genuine and unadulterated from the Excrements of Animals.

For this Reason it seems highly probable, that the common Salt, contained in Nitre, is, also, produced by the universal Acid of the Air, and a certain specific Earth such as is contain'd in common Salt; for, as Alum, Vitriol, Nitre, and a neutral sulphureous Salt, such as that extracted from Pot-ash, long exposed to the Air, require a peculiar earthy Matrix, in which the highly simple and universal Acid of the Air, which is determined to no particular Form, may insinuate itself, by the Presence of which, and the insipid Part of the Air, they revive, and are regenerated; so, also, if in nitrous Earth such a specific Earth of common Salt is contained, it is no Wonder, if, being impregnated by the universal Acid of the Air, it should be transform'd into common Salt. But even this Salt differs from the common Salt we eat: First, with respect to its greater Acrimony. Secondly, with respect to its Solidity: And, thirdly, in this, that by an Affusion of Oil of Vitriol, after an Effervescence, it not only sends forth a Smoke, penetrating like that of common Salt, but, also, ungrateful and disagreeable, like that of Aqua-fortis: So that, by this Method, an Aqua Regia, compounded of the Spirit of Nitre, and capable of dissolving Gold, may be obtained by Distillation.

'Tis, also, observable, that common Salt, which, in Crystallization, retains a cubical Figure, in the Beginning of the Preparation of Nitre, subsides and falls to the Bottom of the Lixivium extracted from nitrous Earths, Ashes, and Quick-lime, when inspissated; but, in its Depuration by Water, it remains in the last Lixivium, by boiling of which it is, at last, form'd into Crystals. But a large Quantity of Water must not be used in the Depuration; otherwise the common Salt, which is heavier than the Nitre, will be first precipitated, and carry'd to the Bottom. For we must observe, that Salts of different Natures, when dissolved in an aqueous Menstruum, are easily separated from each other, and mutually united by Crystallization: Thus, the Particles of common Salt run together, and form a Body of a cubical Figure; whereas the Particles of Nitre, when united, constitute a Body of a pyramidal Form.

The essential Characters and Properties, by which Nitre is distinguish'd from other Salts, are these following.

1. Nitre is, by the Force of Fire, easily fus'd in a Crucible without flaming; but, as soon as an oleous sulphureous Substance, capable of flaming, is added to it, it takes Flame, and produces an Explosion; which Effect happens not only by the Addition of common Sulphur; of Antimony, which abounds with Sulphur; of Charcoal; of Tartar, which abounds with Oil; of some Parts of Animals, the Blood or Bones, for Instance; but, also, by the Addition of Metals impregnated with Sulphur, such as Tin, Iron, and Zink; as also, by an Addition of Sal Ammoniac, which from the Urine receives a certain oleous and sulphureous Principle.

2. Nitre, mix'd and distil'd with a vitriolic Salt, or the Acid of Vitriol, yields an highly volatile acid Spirit, of an ungrateful Smell, and yellowish Colour, as appears in the Preparation of *Hoffman's Spiritus Fumans*, or *Aqua-fortis*; and, because all Clay contains some Quantity of a vitriolic Salt, hence, if three Parts of Nitre are mix'd with one Part of Clay, form'd into small Balls, and dried, the Nitre by Distillation yields its Acid Spirit in the Form of a red Vapour; and, because the acid of Alum is of the same Nature with that contain'd in Vitriol, hence, in Conjunction with Alum, as well as with Vitriol, an acid Spirit, or Aqua-fortis, may be distil'd from Nitre. It must, also, be observ'd, that no other Acid, except one of the vitriolic Kind, can by any means extract the Acid of Nitre, since a very fix'd and strong Acid, such as that contain'd in Vitriol and Alum, is requir'd for that Purpose.

3. Nitre, fus'd in a Crucible, is almost totally converted into an alkaline Salt; and this Effect is first produc'd by mixing equal Quantities of Tartar and Nitre, and putting them into an ignited Crucible; by which means the *black Flux-powder*, commonly us'd by Workers of Metals, in separating their Metals from adventitious Mixtures, is produc'd. Nitre is, also, converted into an highly pure Alkali, when it is mix'd and detonated with Powder of Charcoal; and by a strong Calcination it becomes an highly caustic Salt, of a Sky-colour, and this is call'd Fix'd Nitre. 'Tis, also, worth



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worth our Observation, that the Whole of Nitre may be converted into a caustic Alkali, of an highly acrid Taste, and which, by pouring Water upon it, becomes intensely hot, when mix'd with an equal Quantity of Regulus of Antimony, and melted together to a Mass, in a red-hot Crucible. The same Phenomenon is said to be produc'd with Zink and Tin.

4. Nitre is a Salt of so singular a Quality, that there is none like it in Nature; for it not only cools the Tongue, when applied to it; but, also, the whole Body, when taken internally; and, when put into Water, augments its Coldness.

5. A Solution of Nitre, put into Blood coagulated, and become black after it is taken from the Veins, not only renders it more fluid, but, also, procures it a florid and beautiful red Colour; an Effect not to be expected from any other neutral Salt. By this Experiment, we may, in some measure, account for its Operations, and refrigerating Effect, on the human Body; for Nitre is a Salt, which, by means of its aerial Principle, of an elastic and expansive Quality, allays and stops the tumultuous and exorbitant Motion of the Æther in the Blood and Humours, which, when confin'd, becomes more violent: And to this aerial Principle we are to ascribe the Fluidity, and florid Colour, which Nitre communicates to the Blood. Nitre, also, by procuring a greater Fluidity to the Humours; removes Stagnations and Obstructions, and opens the Pores of the Skin, thro' which the hot and fiery Particles are exhal'd: And as Nitre stimulates the Ducts and Glands to a more copious Secretion of Lymph, hence it moistens the Body, and relaxes and softens Parts spasmodically constricted.

6. Nitre, when detonated with Sulphur, or any other inflammable Substance, is totally carried off in Smoke; by which means, the whole Crasis, and, as it were, the Substance of Nitre, which consists of an acid and alkaline Salt, together with a pinguious and sulphureous Substance, is totally destroy'd; for Gunpowder, kindled in a tubulated Retort, is neither transform'd into an acid Spirit, nor an alkaline Salt, but yields a somewhat acid Phlegm.

7. 'Tis, also, a Property peculiar to Nitre, that, when put into a Crucible, expos'd to a calcining Fire, with Regulus of Antimony, Zink, Bismuth, Arsenic, Regulus of Cobalt, Tin, and Lead, it converts them to a Calx; by which means the purer Metals, such as Gold and Silver, are separated from them. For this Reason, the most expeditious way of separating Gold dispers'd in Antimony, is to calcine and fuse it with Nitre, whereas 'tis a tedious and laborious Task to separate its reguline and antimonial Parts by the Force of intense Fire; and as these Minerals are, in a great measure, virulent, so, when calcined with Nitre, they not only lose their deleterious Qualities; but partly become salutary Medicines.

8. 'Tis sufficiently known to Chymists, that Aqua-fortis dissolves Silver, but not Gold; but it has not as yet been adverted to, that Aqua-fortis, distill'd by Abstraction from common Nitre, does not dissolve Silver, but converts it to a Calx; whereas it quickly attacks and dissolves Gold. This will perhaps seem strange to him, who considers that Aqua-fortis is the Off-spring of Nitre, and, in every respect, agrees with the acid Spirit of Nitre; but his Surprise will cease, when he reflects, that in undepurated Nitre there is a large Quantity of common Salt, which must be separated by Art; and considers that Aqua-fortis, drawn off common Salt, becomes an Aqua-regia, capable of dissolving Gold; for, if Aqua-fortis is even ten times drawn off depurated Nitre, its Virtues will not be alter'd by common Salt; but, if common Salt is mixed with the Nitre, the Aqua-fortis attacks and disentangles it; by which means an highly subtil Spirit of Salt ascends, and this Spirit, in consequence of its highly penetrating Subtlety, enters the most minute Pores of Gold, and, by means of the elastic Sulphur of the Nitre, destroys the Cohesion of its constituent Parts.

9. 'Tis, also, to be observ'd, that if Spirit of Nitre, or Aqua-fortis, are in a due Proportion drawn off common Salt, there remains in the Bottom a Salt, which deflagrates like Nitre; for the Acid of Nitre intimately associates itself with the alkaline Earth of common Salt, and with it is converted into Nitre, from which it expels the Spirit of Salt.

Tho' Substances highly volatile enter the Composition of Nitre, it is nevertheless of a very fix'd Nature. The Volatility of its Principles is sufficiently obvious from the Account before given of its Generation, whilst, on the other hand, its fix'd Nature is evinc'd from this, that it remains fus'd over a Fire for some Hours, without any Diminution of either Weight or Bulk; neither is its Texture alter'd by Flame, tho' a Change is soon produc'd in it by the Addition of a small Quantity of ignited sulphureous Earth.

Tho' an highly volatile and corrosive acid Spirit, as also a very caustic fix'd alkaline Salt, may be prepared from Nitre; yet it is possess'd of a singular Power of removing the septic, and consequently the virulent and corrosive Qualities of almost all Substances, and rendering them propitious, temperate, and salutary. The violent and emetic Virtues of Regulus and Sulphur of Antimony are sufficiently known; and 'tis certain, that by the Addition of a due Quantity of Nitre, and the Assistance of Fire, both these may be converted into mild, temperate,

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and gently diaphoretic Medicines. That most of the Insects, which, by means of their highly acrid Salt, excite Blisters, are excellently corrected by Powder of Nitre, intimately mix'd with them, is certain from Experience: Thus Cantharides, and other Substances of a like Nature, may be safely exhibited even in delicate Constitutions, in order to remove a Difficulty of Urine, provided due regard be had to the Causes of the Disorder, and a small Quantity of Camphire, which powerfully resists Inflammation, is added. Some Purgatives are so highly drastic, that, when imprudently exhibited, they raise violent Commotions in the nervous System, and often excite an Inflammation in the Coats of the Stomach: Of this kind are Gamboge, Scammony, Resin of Jalap, Coloquintida, Elaterium, and Spurge; which two last excite Blisters, when applied externally. Now the caustic Quality of all these is greatly impair'd, by being mixed with any nitrous Salt; and, if there is any genuine and efficacious Corrector of Purgatives, which guards the tender Membranes against Heat, Spasms, and Inflammations, 'tis certainly Nitre. Aloes, which is otherwise of a laxative and balsamic Quality, has by its subtil acrid Salt been frequently observ'd to excite Hæmorrhages; but it is render'd more benign and propitious, by a proper Admixture of Nitre. The Bile, in consequence of its deterfive and bitter Quality, is a balsamic and natural Medicine, without which no Animal can long remain sound, and in a due State: Now, if the Bile is vitiated by a Congestion of acrid Sordes retain'd in the Humours, it acts like Poison by irritating the nervous System, and producing preternatural Heat, Anxiety, Inquietudes, enormous Evacuations, and intense Pain: Now, in order to correct this peccant State of the Bile, no Medicine is more efficacious than Nitre.

As Nitre is a powerful Cooler, when internally exhibited; so there is no more effectual Antifebrile, no Medicine which either so soon, or so safely, corrects the febrile Heat, and removes the woeful Train of Symptoms produc'd by it. Accordingly *Angelus Sala*, in *Myrotech. Sect. 5.* informs us that in Quotidian and chronical Tertian Fevers, as also, in that Species of Fever call'd the *putrid Hemitritans*, Nitre is us'd with wonderful Success; for when the Patients are properly purg'd before, and kept in a moderately warm Place, the Exhibition of Nitre twice or thrice two or three Hours before the Paroxysm, gives such a Change to the State of the Disorder, that Health soon succeeds: And, as all other Refrigerants, the most considerable of which are acid, inspissate and coagulate the human Juices, so, on the contrary, Nitre rather attenuates and renders the whole Mass of Humours more fluid: Hence we understand why it is highly efficacious in extinguishing the Heat of the Body, and why no Salt is more friendly to the Constitution than Nitre. Upon injecting various Liquors into the Veins of Animals, it has been found, that several of them have been kill'd both by acid and alkaline Injections, only with this Difference, that the Acids produced too great a Coagulation, and the Alkalis too great a Fluidity, of the Humours: But *Malpighi*, in *Tract. de Polyp. Cordis, Tom. 2.* informs us, that he injected a Solution of six Ounces of Nitre into the jugular Veins of a strong Dog, without producing any other Change, than a preternaturally copious Discharge of Urine. Hence we may justly conclude, that Nitre is excellently suited, and highly friendly, to the Crasis of the Blood: For this Reason *Ld. Bacon*, in his *Histor. Vitæ & Mortis*, affirms, that a Scruple of Nitre frequently exhibited for a Dose contributes greatly to the Prolongation of Life. Besides, Nitre seems to have a kind of formal Existence in the human Blood, which, when dried, reduc'd to a Powder, and thrown upon live Coals, produces a kind of Ebullition like that of Nitre.

Nitre, also, prevents Putrefaction in Substances subject to Corruption; and tho' common Salt is highly efficacious for this Purpose, yet 'tis doubred, whether Nitre is not preferable to it in preserving Bodies. Thus Blood, taken from the human Veins, may, by an Admixture of a Solution of Nitre, be for a long time preserv'd fluid and beautiful, without any Putrefaction. Besides, 'tis sufficiently known, that Flesh either by means of Nitre alone, or Nitre mix'd with common Salt, for a long Time retains a beautiful red Colour, even after boiling; the Reason of which seems to be, that this Salt exalts the red and beautiful Colour of the Remainder of Blood contained in the minute Vessels of such Flesh. Hence 'tis obvious, that Nitre resists the Putrefaction, which is often form'd in the Primæ Viæ, and diffuses itself thro' the whole Body; and may for this Reason be exhibited with Success in putrid Fevers, and Disorders of Children arising from Worms.

Nitre, taken internally, powerfully promotes the Excretions by Stool, Urine, and Sweat: One Ounce of depurated Nitre, dissolv'd in Water, renders the Body soluble, and procures some Stools, tho' it answers these Intentions better, when mix'd with a proper Quantity of the laxative Decoctions of Tamarinds, Sena-leaves, and Manna. When the Fluids are to be deriv'd to the interior Parts of the Body, especially in Fevers, Nitre is highly efficacious. Among all the Clafs of Diuretics, none is better calculated for quickly removing Obstructions of the urinary Ducts, rendering the Discharge of



the Urine free, and dissolving calculous Concretions, than Nitre. *Penotus*, in his *Treatise de Medicament. Chym.* affirms, that, if a proper Dose of Nitre is taken once every Fortnight, it never suffers the Generation of Sand in the Kidneys, either in Patients subject to calculous Concretions, or Dysuries, whether adult or young, robust or delicate. *Timæus*, in *Consil. Consult.* 3. informs us, that he heard of a certain Man's being perfectly cur'd of the Gravel, by a long-protracted Use of prepar'd Nitre; and *Grulungius*, in *Observ. de Calculo*, informs us, that Sal Prunellæ is not only an excellent Preservative against, but, also, an efficacious Cure for a Nephritis; and I have found from Experience, that an Emulsion of various Seeds, invigorated with Nitre, is with great Success exhibited for alleviating Nephritic Pains: A proper Exhibition of Nitre renders Perspiration more free and liberal, in Patients afflicted with immoderate Watchings, Thirst, and intolerable Heat, because it corrects the Heat of the Blood, and checks the hot intestine Commotion of the Fluids; by which means every thing in the Constitution is rendered calm, the preternaturally constricted Parts are relaxed, and consequently the Blood is freely convey'd to the Emunctories of the Skin. In Practice we daily observe, that the precipitating nitrous Powders excellently promote Sweat, in all Inflammations; but in languid, cold, and cachectic Constitutions, the moving Force of whose Muscles is impair'd, a Diaphoresis must be excited by more hot and active Medicines.

Nitre, is also, an excellent Carminative: The Disorders arising from Flatulencies, stagnating, and pent up, in the Intestines, sometimes spasmodically constricted, are sufficiently obvious to Practitioners; for which Reason they ought to be dissipated and expel'd with all Expedition: For this Purpose I have found no Medicine more effectual and successful than Nitre, either alone, or mix'd with Carminatives; since, by its means, a Discharge of Wind by the Anus is procur'd, the Flatulencies discover themselves by their Fluctuation and Noise, and are happily eliminated with a Noise, which is in my Opinion, principally owing to a Solution and Relaxation of the constricted intestinal Fibres: For which Reason it is justly commended in spasmodic Colics, especially that of the bilious Kind, on which the Antients bestow'd the Epithet *hot*. But, above all other Medicines, Nitre affords the most considerable Relief to hypochondriac and hysterical Patients, since it is excellently calculated for removing the Spasms and Flatulencies, which are the Cause of all the Symptoms incident to such Patients.

But one of the most considerable and important Virtues of Nitre is, that by which it resists Inflammations; for no Disorder is more injurious to the animal Oeconomy than Inflammations, which in very acute Diseases generally destroy the Patient; since, when they seize the Stomach, they produce Anxieties and Inquietudes; when they affect the Meninges, a Pain of the Head, a Phrenitis, or Convulsions; and when the Lungs, a Danger of Suffocation: When an Inflammation happens in other Parts, a preternatural Heat of the internal, and an excessive Coldness of the external Parts is produc'd; whilst, in the mean time, Inflammations of the sanguiferous Viscera easily degenerate into Abscesses or Gangrenes. In order, therefore, to cure the inflam'd Part, Nitre, either alone, or mix'd with a little Camphire, and other bezoardic Substances, is, of all other things, the most efficacious; so that, if salutary Effects are not produc'd by it, the Cure may be justly despair'd of. In Practice I have long us'd such a Powder with uncommon Success, and found that in Pleuritis, a Phrenitis, a Peripneumony, an Angina, an Inflammation of the Oesophagus and Stomach, and an Erysipelas, a frequent Exhibition of it has, in a great measure, remov'd the Heat, the Pain, the Thirst, and Watchings, by exciting a gentle Moisture all over the Body, which was before dry and parched: When mix'd with other proper Ingredients, and applied externally, it also affords Relief to inflam'd Parts: Thus camphorated Spirit of Wine so dexterously prepar'd, as not to be precipitated by an Affusion of Water, when mix'd with a Solution of Nitre, and a due Quantity of distill'd Vinegar, dissolves an Erysipelas, and removes an intense Head-ach.

Besides, Nitre is one of the most considerable of those Medicines calculated for the Cure of Spasms and Constrictions, the Misfortunes excited by which, in the nervous Parts of the human Body, are sufficiently apparent to those who are bless'd with a Knowledge of Diseases, and their various Causes: At least, 'tis certain, that enormous Hemorrhages sometimes arise from no other Cause, than an Inequality of the Circulation of the Blood; since the Vessels, which in some Parts are smaller than in others, being spasmodically constricted, the Blood is impetuously convey'd to the adjacent Vessels, and their Ramifications; by too much distending which, and opening their Orifices, violent Hemorrhages are often produc'd: By this means, Spittings of Blood, Hemorrhages of the Nose, excessive Evacuations from the hæmorrhoidal Veins, Bloody Urine, and immoderate Discharges of Blood from the Uterus, are produc'd. In the Cure of these Disorders, the most ra-

tional Method of proceeding is, to relax the spasmodically constricted Parts, and restore a free and easy Circulation of the Humours thro' the Vessels. This Intention, as we learn from Experience, is excellently answer'd by Nitre, which in these Disorders is highly extol'd by the most judicious practical Physicians. Thus *Riverius*, in *Cent. 1. Obs.* 94. extols it in an immoderate Discharge of the *Lochia*; in *Cent. 1. Obs.* 96. in an excessive Evacuation of the Menstrues; in *Cent. 1. Obs.* 94. in a Spitting of Blood; in *Cent. 1. Obs.* 83. in Hæmorrhages attended with a malignant Fever; and, in *Cent. 2. Obs.* 81. he recommends it for these and similar Purposes. And as Spasms are frequently the Causes of a Suppression of the usual Evacuations of Blood from the Uterus in Women; since its constricted Parts resist the Impulse of the Blood to the uterine Vessels, hence 'tis obvious, that Nitre in such a Case affords singular Relief; for which Reason *Riverius*, in *Cent. 1. Obs.* 80. recommends it in a Suppression of the *Lochia*; and *Grulungius*, in *Obs.* 50. in a Diminution of the menstrual Discharge. As Pains are often the Off-spring of Spasms, so those terrible Pains, which generally accompany the Excretion of Stones which affect the Intestines, and are taken for a colical Indisposition, or which seize the Pericranium, are happily remov'd by the Use of Nitre: And *Welschius*, in *Cent. 2. Curat. ult.* informs us, that by Nitre alone, a large Number of Soldiers in the *Hungarian* Camp were freed from an Epidemical Cephalgia.

Though these Things are obvious in Practice, and confirmed by Experience, it is, nevertheless, an additional Satisfaction to the Mind, to know the Reason why, and the Manner in which, Nitre produces these Effects in the human Body.

Though it is, certainly, a difficult Task to know and demonstrate the Virtues of Medicines, yet this Difficulty ought not to make us despair in our Pursuit, but rather animate our Courage in the painful and glorious Research; for Experience, supported by Reason and Judgment, in the Exhibition and Application of Medicines, are the two things on which the Truth and Certainty of Physic depend. We shall, therefore, endeavour to deduce the various Effects of Nitre from one common Principle or Source. The principal Virtue, then, of Nitre is, to refrigerate and extinguish the preternatural Heat of the Blood. Now it is not only certain, but agreed upon by Physicians, that all Heat in the Body is produced by a turbulent intestine Motion of the Particles of the Blood, especially its sulphureous Parts, round their Axis; so that the brisker and greater this Motion is, the greater is the Attrition produced by the Pressure of the Blood, by means of the Heart, Arteries, and fibrous Parts of the Body; and the greater the Attrition, the greater the Heat must, of course, be. Whoever, therefore, knows how to stop this intestine Motion, must, of course, know how to remove the preternatural Heat. This Motion is stopt, when the Particles of the Blood cease to move around their Axes, and proceed in straight Lines, which, according to the modern Philosophy, is the Cause of Cold. This is sufficiently proved from contracting the Mouth very narrow, and blowing quickly; which produces a Sensation of Cold, whereas, when the Breath is gently emitted, a Sense of Heat is excited: And I am of Opinion, that this artificial Cold is not so much owing to any material Principle, as to a particular Direction of Motion in the Particles; and this seems to be demonstrated by the curious Conversion of Water into Ice, in the middle of Summer, by means of Nitre, common Salt, and Sal Ammoniac.

But that there is such a Motion in Nitre, or that the Motion of its Parts, when disengaged by Heat, is rectilinear, may be proved from various Circumstances. That Nitre is elastic and expansive, is sufficiently certain from Gunpowder, whose Virtues can only be deduced from this Quality; for this Powder is of so elastic and expansive a Nature, as to force Objects from itself to a certain unlimited Circumference. Besides, that Nitre is possessed of such a Quality, is sufficiently obvious from its Mixture with coagulated Blood, which, by its means, is forthwith resolved, becomes fluid, and assumes a red and florid Colour. To this elastic Expansion of Nitre it is, also, owing, that, when mixed with Spring-water, it sensibly augments its Coldness. Hence it is agreeable to Reason, and our Conceptions of Things, that Nitre, taken internally, by producing such an Expansion in the Fluids, diminishes the hot and intestine Commotion of the Parts of the Blood and Humours. And this Effect it produces, not only by diminishing the Agitation and Effervescence of the acrid Bile with other Juices in the Prime Viæ, but, also, by correcting the exorbitant Heat and Commotion of the Parts of the Blood in the Heart and Lungs. When this hot and intestine Motion is allayed, the Fibres, before constricted by the Heat, are relaxed, the Mouths of the cutaneous Emunctories opened, and Perspiration rendered freer: So that the active and sulphureous Parts, retained in the Body, exhale; by which means the Heat and Thirst are allayed, the Spasms removed, the Pain alleviated, and both the Excrements and Flatulencies freely evacuated from the Intestines. Besides, when the Heat, which consumes the Moisture of the Body, is mitigated, this Moisture is afterwards retained, and softens and relaxes the Parts before constricted; so that Nitre not only refrigerates, but moistens.

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We have, also, observed, that Nitre preserves Bodies from Putrefaction, which it powerfully resists. This Effect is, also, produced by the expansive Quality of Nitre, which extinguishes the intestine Motion, which dissolves the Union of the Parts of which the Body is composed, and in which the Force and Cause of Putrefaction consist: So that in the Preservation of Bodies Nitre produces an Effect analogous to that of Cold.

We now come to inquire into the Cause of that singular Virtue, by which Nitre corrects and subdues the caustic and drastic Qualities of some Medicines, as we have already observed with respect to drastic Purgatives, Insects abounding with an acrid Salt, and Minerals of a deleterious Quality, the drastic Force of all which is so corrected by Nitre, that the Physician needs no longer dread their dangerous Consequences. The Reason of this seems to be, that all virulent Substances, by an highly penetrating and active Motion of their minute and subtile Parts, irritate, lancinate, and corrode, the tense Nerves, and delicate tender Fibres. Now the more numerous, and the more closely united, such Particles are, the more forcibly they exert their Power; and, on the contrary, the more they are divided, the more of their Force they lose. It is confirmed by Experience, that not only all Caustics, whether acid or alkaline, but, also, Sublimate itself, than which there is no stronger Poison, lose their deleterious Quality, when only exhibited in a sufficient Quantity of Water. In like manner, when Nitre, calcined with Regulus of Antimony, does, by its solvent and expansive Quality, separate the antimonial Particles from each other in the Fire, dissolve their close Union, and, by dividing them, render them more subtile, an innocent, mild, and diaphoretic Quality is conveyed to them. But this Division of the Parts must be sufficient; for which Reason two or three Parts of the Nitre are requisite to one of the Antimony; for, if the Quantity of Nitre is too small, the Calx of the Antimony will, in some measure, excite a Nausea and Vomiting. This diaphoretic Calx, when duly prepared, and tused with an equal Quantity of Nitre, and Powder of Charcoal, immediately resumes its virulent Quality, because its Parts, which were formerly divided, are now collected, and closely united. Nor is it improbable, that Nitre, when mixed with drastic Purgatives, and Velicatories, acts by dividing and separating their Particles.

From what has been said, it is sufficiently obvious, that Nitre is an excellent Corrector of all drastic Substances, and, consequently, of singular Service in the Practice of Physic. Thus, it is commonly mixed with Emetics, Purgatives, Diuretics, and Sudorifics of the drastic Kind: For which Reason an highly safe Vomit may be prepared by mixing two Grains of emetic Tartar with twelve Grains of the Powder of Crabs-eyes, and three Grains of the Powder of Nitre. Very safe purging Pills, proper in various Cases, may be prepared by adding six Grains of Nitre to the *Pilule Avicennae*, and the *Extractum Panchymagogum Crollii*, of each ten Grains. A valuable Diuretic may be, also, prepared, by adding some Grains of purified Nitre to Millepedes, and Crabs-eyes, of each ten Grains. If twelve Grains of Bezoardic Mineral are mixed with one Grain of Camphire, and with volatile Salt of Hartshorn, and Nitre, each four Grains, we have a very safe and efficacious Sudorific. If we desire a safe Mercurial Medicine for removing Coagulations of the Lymph, and Infarctions of the Glands, take prepared Cinnabar of any Kind, whether native, or Cinnabar of Antimony, and mix with a due Quantity of Nitre, and other precipitating Substances. And this is a valuable and safe Remedy in chonical Disorders. We, also, use, with singular Benefit, Nitre and Cinnabar with those Sedatives, the principal Ingredient of which is Opium, such as the *Theriaca Coelestis*, *Laudanum Opiatum*, and the *Pilule Cynoglossae*; since, by this means, their narcotic Quality is much corrected. *F. Hoffman.*

## THE EXAMINATION OF NITRE.

1. Put Nitre into a clean Crucible, and fuse it with a gentle Fire, without Fulmination: It remains melted like pure Water, without changing its Nature, and scarce losing any thing by Exhalation. It passes through the Crucible, but does not grow alkaline, or become sharper; and, when poured out, it presently becomes solid; and never, when thus melted, takes Flame, nor ignites; whence it is falsely called an inflammable Salt. And yet, while it remains thus fused, if any combustible Matter be thrown in on it, it immediately takes Flame, whence it came to be called Inflammable; but, when taken internally, it cools the Body more than any other Salt.

2. Put a Solution of the purest Nitre, in Water, into separate Glass Vessels, and pour successively to them different Acids; and the Liquors will be found to make no Effervescence, nor to grow warm, opaque or turbid. To another Parcel of the same pour pure Oil of Tartar *per Deliquium*; whereupon the Liquor will grow opaque and muddy, and soon deposite a large Sediment at the Bottom; from whence the Liquor being decanted, it will no longer grow troubled by the Addition of fresh Alkali. Nearly the same Thing happens upon the Addition of a volatile Alkali. And this is the true Nature of Nitre.

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Hence it appears, that Nitre is neither alkaline, nor acid, nor of itself inflammable; but of all Salts the most easily fused in the Fire.

## THE REFINEMENT AND CRYSTALLIZATION OF NITRE.

Dissolve common Nitre in six times its Quantity of boiling Water; strain the hot Lixivium quick; put it into a clean cylindrical Vessel; and exhale it over a clear Fire, to a Pellicle: Set it in a cool Place with clean Sticks a-cross the Vessel; there will presently be formed long, prismatic, hexagonal, transparent Crystals. Collect these, and put them into an earthen Colander, that the Liquor may drain from them; afterwards dry the Nitre in the open Air.

2. Dissolve Nitre in eight times its Quantity of boiling Water; filtre the Lixivium; then drop therein some pure Oil of Tartar, mix them well; then drop in more, and continue to do thus, till the Liquor appears no more disturbed. Boil the Lixivium for a single Minute; strain it hot to make it perfectly clear; exhale to a Pellicle; pour it out into a clean cylindrical Vessel, with little Sticks laid a-cross, and let it stand in a quiet Place; prismatic Crystals, like the former, will thus be formed. No Experiment shews, that any Alkali here adheres to the Crystals of Nitre, which is thus made pure; nor does it appear, that any Method can afford it purer.

3. Let the Lixivium that remains after this first Crystallization, be diluted with an equal Quantity of fair Water; then boil for a Moment, filtre hot, inspissate to a Pellicle, and set in a cold Place, as before: It will thus shoot into Crystals of pure Nitre, which are to be dried as above. The remaining Lixivium, being again treated in the same manner, and again set to crystallize, yields more of them. And now the remaining Liquor, which is fat and sharp, will afford no more Crystals, and dries with great Difficulty; and this happens not only when Alkali has been used in the refining, but, also, when nothing but pure Nitre was added. This last Remainder is a peculiar and very saline Fluid, that long remains fixed in the Fire.

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1. By this means an excellent Nitre is procured for Medicinal Uses, being very light, of a particular bitterish Taste, and, when taken into the Body, it easily dissolves therein, wonderfully cools and thins the Blood, giving a florid Colour thereto, and checking the Inclinations to Venery. It is changed in the Body, not being unalterable therein, like Sea-salt, but turning into the human Salt. If the moist or solid Parts of Animals be salted with this Nitre, they are thereby kept extremely red, and free from Putrefaction: Whence, in all inflammatory Distempers, attended with an inflammatory Condensation of the Blood, this Salt proves excellently attenuating, and, at the same time, no way offends by any violent Acrimony, nor proves prejudicial by its Weight. It does not occasion Thirst, and prevents the Salt of the Body from turning alkaline, and the Oil from putrefying; and, on this account, it may properly be called an Antiphlogistic Salt.

2. Here we see an Example of that Operation usually called the Crystallization of Salts, which is a Collection of saline Principles, of the same Species, into particular Glebes, or Shoots, always of the same Figure, and peculiar to each particular Salt. This Depuration depends upon the Law of Nature, whereby the Parts of different Salts, being diluted in Water, and brought to a certain Proportion in respect of the Water, begin to acquire a Faculty of uniting their own particular Parts together, more than of uniting with the Water, or any other Salts: Whence they repel both the Water, and other Salts. And thus those Salts always begin to come first together, when several Kinds are mixed, which require most Water to keep them dissolved; for thus these associate first, and repel from them the other saline Parts, that remain fluid in less Water, so that, if any Salts could be resolved in one and the same Proportion of Water, it would be extremely difficult to separate and distinguish them, which is now easily and certainly performed. And thus Nitre is perfectly separated from Sea-salt, and Sea-salt from Salt of Tartar. For, when Nitre is thoroughly purified from Sea-salt by Crystallization, it affords an acid Spirit by Distillation, which dissolves Silver, but will not touch Gold; whereas, if a little Sea-salt remained with the Nitre, it would afford an Aqua-regia, not an Aqua-fortis. The same Nitre, being dissolved in Water, and purified with the Addition of fixed Alkali, by the bare Crystallization, throws off all the Alkali; for in Distillation it is converted into an acid Spirit, which would not be such, if any fixed Alkali adhered to the Nitre. Whence we may observe a wonderful attractive and repelling Power, in this Action of Crystallization.

3. If these Crystals are well prepared, they always appear transparent, and of their own exact particular Figure, and so long as they are thus, they always consist of the Salt and Water, united



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united in a certain Method and Proportion. This appears from hence, that if these Crystals be put into a clean Glass, covered with an Alembic-head, and heated by the Fire, they yield a pure Water; but, at the same time, presently grow white, opaque, and, losing their Figure, fall into a Powder of no particular Figure. But if this Powder be again dissolv'd in Water, inspissated, and crystalized, the same Form and Transparency return. Whence this ought to be considered by those who write about the Figure of the saline Principle. Nitre, thus purified, remains dry in the Air, and does not easily run by the Moisture thereof.

## NITRE CHANGED TO ALCALI, WITH TARTAR AND FIRE.

Take six Ounces of pure dry Nitre, reduced to Powder; and the same Quantity of pure, dry, and pulveriz'd Cream of Tartar: Mix them together in a Mortar, and again dry the Powder thoroughly. Put an Ounce of this Powder into a clean and dry Bell-metal Mortar, first well heated; and apply thereto a little Bit of burning Coal: The whole Mixture will then instantly deflagrate, with a violent Noise, scattering many Sparks abroad, dispersing a strong-smelling Fume, and leaving behind a white Mass, somewhat greenish in several Parts. As soon as the Deflagration is over, throw half an Ounce of the same Powder upon the burning Mass; and this, also, will deflagrate as the former, but quicker, because of the greater Heat. Continue thus, till the whole Mass is deflagrated, and leaves behind a white, greenish, uniform Mass, except a few small Parts up-and-down, which have not sufficiently felt the Fire. These, therefore, should be carefully separated from the Mass: And hence it would be better, if only a small Quantity were deflagrated at once, because the Fire would be thus more equably applied thereto.

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Hence it appears, that Nitre, which, of itself, is not inflammable, according to the first Process, yet, being mixed with Tartar, which is oily, it immediately takes Fire, with a violent Agitation, like Gunpowder, upon the Application of a live Coal; and that the manifestly acid Salt, made by a Mixture of Nitre and Tartar, is, at once, by a sudden, single, inflaming Action of the Fire, turned into Alkali; of which, a little before, there appeared no Sign, either in the Nitre, or the Tartar. Nor is there hitherto known any Method so sudden of producing a strong fixed Alkali, from a Mixture of Salts that are not alkaline; but, on the contrary, giving manifest Signs of a predominating Acid. For the Salt, thus produced, is a sharp, fixed, and strong Alkali in all its Effects, and almost in every chymical, medicinal, and physical Operation. It, however, differs somewhat from other fixed Alkalies, as yielding, when Oil of Vitriol is poured upon it, a certain acid Spirit, that plainly appears by its Scent to be Spirit of Nitre; which shews, that some true Nitre still remains in this Alkali, but the Quantity of this Acid is small. We have here, therefore, an excellent Method of expeditiously preparing a fixed Alkali, whenever it is wanted. And this sudden Change of Nitre into Alkali will not appear strange to him who knows, that no Nitre is obtained in *Europe* without the Assistance of fixed Salt, which is found in the Ashes of burnt Wood. Lastly, the Salt, thus prepared, readily runs in the Air.

## NITRE TURNED TO AN ALCALI, WITH LIVE COALS.

Fill a strong and large Crucible with very dry powdered Nitre, laid in light; set the Crucible firm in the Furnace, and surround it with burning Coals, at a Distance; then gradually bring them nearer, that the Crucible, with the Nitre it contains, may be thus heated equably, to prevent bursting. When all is now thoroughly hot, apply as strong a Fire as is necessary to make the Nitre run like Water: Then take a little Piece of Wood-coal, thoroughly ignited, and put it gently into the melted Nitre, now at Rest; the Coal (not the Nitre) will thus instantly take Flame with an hissing Noise, and move over the whole Surface of the melted Nitre, with a brisk Motion, till it is consumed, and the Flame extinguished, so as to leave the Nitre melted, as before it was thrown in. Now, throw in another Bit of live Coal, as before, and the same Phenomena ensue. Continue repeating the Operation, till, at length, the Nitre remains fixed with the same Degree of Fire, so as to flow no longer, nor give Flame to the Coal thrown in, which, at length, will always prove the Case. This State may be known to approach, when the Nitre begins to lose its Fluidity, and the Coal leaps briskly about, and sometimes flies out of the Crucible. At this Time, therefore, the Fire should be a little increased. When the Coal ceases to flame any longer, let all cool, and there will remain in the Crucible a Mass with an hollow Part on its Top, where the last burning Coal had rested: This Mass is solid, ponderous, of a Colour

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between white and green, fiery, alkaline, and presently runs in the Air: Therefore, while yet very hot, let it be presently taken out, by breaking the Crucible, and put into a clean Glass, to be carefully stopped.

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1. Here the Eye perceives, that Nitre will not take Flame with a burning Coal; and that, between the inflammable Matter of the Coal, and the melted Coal, there arises a great Motion of Impulse, and Repulse; for, when the live Coal, that flew about in the Crucible, is consumed, the Nitre immediately remains without any visible Motion, and does not appear on Flame, till, by the Addition of a fresh Coal, the same Motion is renewed; and, therefore, the Consumption of the Coal is hastened by the melted Nitre, which it would otherwise consume much slower. And this accelerating Action of the Fire upon the combustible Matter seems to increase the Deflagration; and, therefore, that the Effect of Nitre upon Combustible Bodies, by means of Fire, is no more than this violent repulsive Motion, whereby the Coal, if somewhat large, is driven from the Nitre with an explosive Force; after which, the whole Nitre remains calm, and at Rest.
2. The Ashes of the fixed vegetable Coal, after the Deflagration, here turn into a fixed Alkali, which very easily relents in the Air; but this Alkali here produced is much larger than would be afforded by the burnt vegetable Matter, and must, also, proceed from the changed Nitre. This is another Method of converting Nitre into an Alkali: The Alkali thus produced is very difficult to keep dry, but presently relents in the Air, and runs into a strong, fiery, alkaline Liquor, leaving a large Quantity of Ashes behind. But if the Salt, as soon as prepared, be dissolved in Rain-water, and directly strained, and the Fæces, remaining in the Strainer, be washed so long, in Changes of Water, till they retain no Salt, they become insipid, when dried. And, if the several Solutions be evaporated to the Consistence of the Oil of Tartar *per Deliquium*, a Liquor like that will be obtained. And these pure Ashes, being weighed, will shew how much of each remained after the Deflagration, and, consequently, how much Salt of the burnt vegetable Coal might contribute to the making of this Alkali. Hence, also, may be known, how much the Nitre contributed to its Production. This Preparation is commonly called Alkalized, or Fixed Nitre.

## SAL PRUNELLÆ, FROM NITRE.

1. Take Nitre, purified according to the second Process; melt it at the Fire, in a clean Crucible; and, as soon as melted, pour it out in Cakes upon a clean Marble; and keep them, under the Title of *Sal Prunellæ*, for Medicinal Use.
2. Dissolve this Nitre in clear Rain-water, wherein red Poppy-flowers have first been infused warm, so as to give a beautiful Tincture, which is to be filtered; inspissate the Solution, and let it shoot into Crystals, in the common Method. These, being dried, are another Kind of *Sal Prunellæ*, or crystal Mineral; formerly held a Secret, as an infallible Antiphlogistic.
3. Melt four Ounces of pure Nitre in a clean Crucible, and throw a Scruple of the Flowers of Sulphur thereon; there will instantly arise a great Flame, like Lightning, which, when the Sulphur is entirely consumed, directly goes out of itself. This being three or four times repeated, and the Nitre poured out into Molds, so as to form little Cakes, is another medicated *Sal Prunellæ*.

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The Nitre, thus prepared, entirely agrees, in Virtue and Use, with that of the second Process; which I rather prefer, as the Trouble of the present Process seems unnecessary, and refined Nitre every way answers the Purpose. Hence we see, that melted Nitre, though perfectly at Rest in the Fire, has the same Effect upon inflammable Sulphur, as it before had on the ignited Coal; that is, to make it deflagrate quicker and stronger; and hence the Discovery of Gunpowder, which is prepared from Nitre, Sulphur, and Coal. This present Preparation has obtained the Name of *Sal Prunellæ* from the *Germans*, who observing that a certain kind of epidemical Camp Fever, attended with a dangerous black Quinsy, which they call *Die braune*, was happily cured by the Use of this Powder, they, thence, called it by that Name. For the same Reason they gave the same Appellation to the Plant Self heal, or *Prunella*, because this cures the same Distemper. The Salt, thus prepared, is never alkaline.

## SAL POLYCHRESTUS.

1. Melt pure Nitre in a Crucible, and throw a little pure Sulphur thereon, not exceeding a Scruple at a time; it will deflagrate,



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deflagrate, as in the preceding Process: Continue throwing on the same Quantity after each Deflagration, till at length as much Sulphur is used as there was Nitre; towards the End of the Operation, the Sulphur thrown in does not flame so violently, nor so brightly, as before. Keep the Crucible still in the Fire, in the State of Ignition, for an Hour; the Salt will appear redish up-and-down, but otherwise of a grey Colour: If immediately after the Deflagration, with an equal Quantity of Sulphur, the Salt be taken out, without any farther Application of Fire, it has always appeared to me, upon Examination, to have perfectly the same Efficacy as the former.

2. Or take equal Parts of pure dry Nitre, and Flowers of Sulphur; grind them to fine Powder, and heat it carefully; then throw two Scruples thereof at once into an ignited Crucible, while it remains in the Fire; a violent Deflagration will immediately arise; which being over, throw the like Quantity to the Remainder, and this will deflagrate as the former. Continue thus, till all the Powder be thrown in; there will now remain at the Bottom of the Crucible, a Salt extremely like the former.

3. Dissolve the Salt, thus prepared, in five times its Quantity of hot Water, in a Glass Vessel; strain it while it is hot; inspissate it to Driness; it will be of a white Colour, of a bitterish, sulphureous, warm Taste, and of the same Nature with the Salt sometimes found in hot mineral Waters: It is neither Acid, nor Alkali, but consisting of Nitre, and some Proportion of Sulphur, changed by the Fire.

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Sulphur, therefore, which consists of the Acid of Vitriol, and Oil, united together, has here the greatest Part of its Oil consumed in the Flame with the Nitre; and its acid Part, now, perhaps, somewhat changed by the Fire, along with some Part of its Oil, intimately mixed among the Nitre, now, also, changed by the same, so as to produce a neutral fossil Salt in the Fire. Whence we see, that Nitre, which, when fired with a vegetable Coal, was converted into a fixed Alkali, is here, with Sulphur, changed into a fixed Salt, that is not alkaline, tho' it had so long, and so strongly, been deflagrated with Sulphur. Physicians, especially those of *Paris*, having thoroughly experienced the Virtues of this Salt, called it *Polychrestus*, because of its various Effects, and proving successful in many different Diseases. If taken upon an empty Stomach, by a Person in Health, in the Quantity of two Drams, diluted with twenty times its Quantity of Water, the Person walking gently after it, and drinking four or six Ounces of new Whey, for three or four times, it sometimes proves gently vomiting, oftener purgative, but always diuretic and sudorific, so often as it is determined to operate that Way, by Heat, Motion, and Sudorifics. It cuts cold viscous Phlegm, resolves in dense Inflammations of the Blood, opens the Passages, corrects the Bile, when tending to Putrefaction, excites it, when languid, and stimulates it with Gentleness and Safety. Hence, being prudently given in chronical and acute Distempers, it proves curative: It almost certainly cures inveterate Tertians, without any Danger of Relapse, or without obstructing the Viscera: It securely cures Quartans, by gradually resolving the sluggish Matter thereof; and, therefore, has deservedly obtained the Name of the Salt of many Virtues. If a little Sal Ammoniac be thrown into melted Liquor, it takes Fire; and, if saturated by repeated Addition, it affords a wonderful Salt, that deserves to be examined, on account of its particular Nature.

## GLAUBER'S SPIRIT OF NITRE.

Put eighteen Ounces of pure dry Nitre, reduced to an impalpable Powder, into a clean Glass Retort, and pour thereon six Ounces of pure, and highly rectified, Oil of Vitriol: Immediately place the Retort in a Sand-furnace, and apply a large Glass Receiver; luting the Junction with a Mixture of Lime-clay, and a little Sand. There will presently arise an Heat, and a red Fume; apply a moderate Fire, and the Receiver will soon be full of red Fumes, and a Liquor begin to drop gradually. Increase the Fire to the utmost that Sand will give; and then let all spontaneously cool. As soon as the Retort is a little cold, separate the Receiver, and have at hand a strong dry Glass, with a narrow Neck, fitted with a slender Funnel; pour the Liquor into a Bottle, through the Funnel, under a Chimney, to prevent the red Fume from any way coming to the Lungs; for it is sharp, fiery, incredibly volatile, and diffusive: As soon as the Spirit is in, exactly stop the Mouth of the containing Glass, with a Glass Stopper; in like manner, stop the Receiver, and set it by for the same Use; it will remain for many Weeks filled with a red Vapour, in continual Motion. The Liquor in the Glass will appear of a Gold-colour, with a red Vapour always appearing in the empty Part above, even for Years,

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as I have found by Experience; and, if at any time open'd, a volatile, copious, red Vapour immediately flies out. The Operation is best performed in the cold Winter-season.

## REMARKS.

Oil of Vitriol can scarce touch Nitre, but there immediately arises a violently acid, sharp, fiery, volatile Spirit, that is perfectly nitrous, and has all the same Effects as common Aquafortis, and, with fixed Alkali, returns to true Nitre again. It is impossible to obtain more Spirit from this Nitre, by the Addition of less or more Oil of Vitriol, whatever Degree of a Sand-heat be used. All the Nitre, therefore, is not changed from fixed to volatile, from solid to fluid, from mild to sharp, from white to red, from neutral to acid, and from unactive to a moveable or restless Liquor. This Liquor is the true Spirit of Nitre, as appears by its Smell, Taste, Colour, red Fumes, Effects, and its Power of regenerating Nitre again. It contains nothing of the Oil of Vitriol employed, as appears from certain Experiments: The other Part of the Nitre, therefore, which is not render'd volatile by this Operation, unites with the Oil of Vitriol, fixes therewith, and becomes a white dense Salt, neither acid, nor alkaline, but neutral; and of a new Kind, somewhat resembling the Tartarum Vitriolatum. Upon considering this, some eminent Chymists have supposed, that Nitre, in its Origin, was made of a fixed alkaline Salt, and the proper Spirit of Nitre, such as is here produced; and mixed together to a perfect Saturation. But as Oil of Vitriol is a much stronger Acid, than Spirit of Nitre; when that comes to be mixed with the Nitre, they imagine, that the fixed alkaline Part of the Nitre attracts the acid Oil of Vitriol, so that the two here unite into a Salt, consisting of the Alkali of Nitre, and the Oil of Vitriol, while the pure Acid of the Nitre, now set free, by the Oil of Vitriol, from the Alkali that detained it before, remains a pure, red, volatile Acid, of its own peculiar Nature. Hence they attribute this whole Action to the bare Separation of the Parts pre-existing in this Form before, and not produced afresh by the Action of the Fire. This Explanation seems very plausible, and countenanced by other Experiments, particularly in the two next Processes but one. But if we consider the Origin of Nitre from Animals, and fixed Alkali, it seems difficult to find a Principle in them, any way resembling such an acid Spirit, as is here prepared; especially since the most diligent Inquirers into Nature cannot find any perfect Nitre spontaneously generated. Certainly there is no Instance of any natural Acid like that here obtained; we must, therefore, abide by our Experiments, and beware of hasty Conclusions. There is no known Method, either of Art or Nature, for obtaining a stronger, or a purer, Spirit of Nitre than this; whence we shall always use this Spirit for the future, in those Operations that require it. *Glauber* was the first who discovered this Art, which he held as a Secret, and sold the Production at an extraordinary Price, but at length divulged the Method; to him are we therefore obliged for so excellent an Invention. And hence we have an Intimation, what Numbers of new, useful, and excellent Discoveries might be made, by applying one Body to another, and afterwards working upon them with Fire. The present Experiment is one of the noblest that Chymistry has produced.

## GLAUBER'S DULCIFIED SPIRIT OF NITRE.

1. Put into a tall Bolt-head eight Parts of pure Alcohol, prepared without Alkali; let fall into it only a few Drops, at once, of *Glauber's* strong Spirit of Nitre; then leave off, and shake the two Liquors well together, that they may perfectly mix; afterwards drop in more; shake as before: And thus proceed carefully, till an eighth Part of the Spirit of Nitre be added, in proportion to the Alcohol; observing, after each time, to shake the Glass thoroughly. Afterwards digest the Liquors for some time, and then distil twice or thrice over in a Retort: Thus a true dulcified Spirit of Nitre will be obtained.

2. If common Spirit of Nitre, and common Spirit of Wine, were here used, they would not thus afford so noble and balsamic a Spirit, on account of the Water they each of them contain.

3. I have often experienced, and shewn, the dangerous Effects that may arise upon mixing large Quantities of Alcohol, and strong Spirit of Nitre, together: For, if to two Drams of *Glauber's* Spirit of Nitre, contained in a Bolt-head, there be at once added six or seven Drams of Alcohol, there will arise a violent Heat, Ebullition, and Vapour; and all the Liquor suddenly escape out of the Glass, though it were ever so high, and this with great Danger of Suffocation, if it should touch the Lungs; and in this manner I have lost both the Liquors. The excellent Doctor *Stare* has more Observations to the same Purpose, in the *Philosophical Transactions*.

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Upon thus mixing together Alcohol, and Spirit of Nitre, there immediately arises a fragrant Smell, like that of Southernwood; there is, also, observed an high Degree of Effervescence betwixt this volatile Acid, and pure subtile Oil, without the least Interposition of an Alkali: And yet the Effervescence is almost fiery; so that, if a lighted Candle were applied to the Vapour, the Inside of the Glass would appear of Flame, and the whole instantly burst in a dangerous manner. The oftener these two Liquors are digested and distilled together, the more exactly they unite, and thus afford a perfectly acid and oily Salt, which has an actual preservative, balsamic, detergent, dissolving Virtue, and prevents the Putrefaction of the Bile. Being properly diluted, and prudently used, it presently gives a beautiful Whiteness to the Teeth; but, if imprudently used, destroys them: It restores the Appetite, if depraved by a mucous Phlegm, or corrupt Bile; or if the Cause proceeds from a Weakness of the Stomach: It is a great Carminative; it is recommended as a Preservative against the Stone, and even as a Solvent for it: It was formerly the famous Lithontriptic of *Sylvius*, held at so dear a Price. It promotes Sweat, provokes Urine, allays Thirst, corrects a fetid Breath, and has particular Virtues in the Scurvy. It is conveniently taken upon an empty Stomach to twenty or thirty Drops in Wine, Mead, or Beer.

## THE REGENERATION OF NITRE.

1. Take an Ounce of dry fixed Nitre, made according to the third, or fourth Process; dissolve it in eight times its Quantity of Water, and filtre the Solution. Pour the Liquor hot into a clean, heated, large Glass, with a narrow Neck; drop thereto, successively, a few Drops of *Glauber's* strong Spirit of Nitre. The falling in of each Drop suddenly occasions a great Effervescence; shake the Glass so long as this continues; then drop in more, as before; and continue thus, till the Effervescence begins to abate; after which add only a single Drop at a time, and strongly shake the hot Liquor. Proceed thus, carefully, till no more Effervescence appears: The Liquor will be transparent, and certain long and crystalline Shoots will begin to be form'd therein. It has no Scent; the Taste is somewhat bitterish, and perfectly nitrous. Dilute the Liquor a little more, boil it for a Moment, strain it hot, evaporate to a Pellicle, and actual Crystals of Nitre will shoot. Strain the remaining Liquor; inspissate, and crystallize, as before; thus more true Nitre will be obtained.

2. If any other pure fixed Alkali, prepared from Tartar, or Pot-ash, be used in this Experiment, instead of fixed Nitre, the Success will be in every respect the same, and no Difference be found in the Nitre produced.

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The illustrious Mr. *Boyle* conceived so highly of this Experiment, that he thought proper to write a Treatise upon it: And truly it is one of the most capital Discoveries in Chymistry; as shewing how, from the strongest and most corrosive Acid and Alkali, immediately to produce, by a bare proportional Mixture, a neutral, mild, cooling Salt, in no respect corrosive. Here an highly odorous and volatile Acid is, in an Instant, attracted into a fixed Alkali, with the Loss of all its Odour and Volatility, so as to bear a Fire of Fusion, without any remaining Volatility: Whence we may easily understand the great attractive Force there is betwixt Acid and Alkali. At the Instant of this Conflict, a Quantity of elastic and highly expansive Air arises, which is only generated in the Action of the Attraction, and ceases when that is over: Whence Air seems to be struck out of the Bodies of the Acid and Alkali in the Collision: Hence this Action seems to be an Attraction, not a Repulsion; and, perhaps, the violent and sudden Motion arises from the Expulsion and Breaking-out of the Air, while the Alkali and the Acid are closely uniting. Here we see, likewise, a subtile liquid Acid again forms a firm, solid, saline Body with an Alkali; and that the Alkali, which would before run spontaneously in the Air, and the Acid of the Nitre, scarcely by any other means to be render'd solid, afford a Salt, upon uniting, which, when dry, will remain firm in the Air, and even acquire a solid Form, or shoot into Crystals in Water. Here again we see, that an Alkali may be determined by an Acid, into that kind of Salt which afforded the Acid. Hence Alkali appears a kind of unimpregnated or Female Body, to be impregnated by an Acid, which acts as the Male, with respect thereto, and generates its own Kind, or preserves its Species; and, therefore, the indifferent Nature of Alkali is determined by the Acid. And hence, again, it appears, that the last Principles of Nitre may consist of any fixed Alkali, saturated with the acid Spirit of Nitre; and, therefore, that the Nature thereof, the Figure, and other Properties, may be

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owing to a Conjunction of them both. But whether all Nitre originally proceeded from this Acid, before pre-existing of itself, and united with a fixed Alkali, in like manner pre-existing by itself, I cannot say; and very much question. But that Nitre may be made in this manner, and, also, that it may be procured from Earth, impregnated with the dissolved Parts of Animals, and the saline Parts of Vegetables, as, also, with Quick-lime, I certainly know; and this is sufficient for me.

## NITRE REGENERATED IN AN UNFIXED STATE.

1. Into a capacious Glass, with a narrow Neck, put three Ounces of pure volatile alkaline Salt; dilute it with six times its Quantity of fair Water; and, when dissolved, drop in a Quantity of pure Spirit of Nitre; an Effervescence will arise like that of the preceding Process. Continue in the same manner as there directed, till the Point of Saturation be exactly hit; soon after which, oblong, saline, prismatic, eight-sided Crystals will shoot, exactly like Nitre.
2. Again, dilute this compound Liquor, with twice its Quantity of Water; filtre; exhale to a Pellicle, over a gentle Fire; and set the Whole in a cold Place; and nitrous Crystals will be formed. Prosecute the Operation, till all the Salt be shot, which will appear in the Form of scentless Crystals of Nitre. These Crystals easily melt in the Fire, but at the same time fly off, not remaining fixed like Nitre: They make a Flame with all inflammable Matters, like true Nitre; and, with Oil of Vitriol, afford a Spirit like true Nitre. Hence they are true Nitre, but semivolatile.

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This is an excellent Experiment, and teaches the several Particulars explained under the last Process; to which we may add, that here, from two of the most odorous Bodies, there arises a perfectly inodorous Salt; from two violent Caustics, an exceeding cool and mild Salt; from two very volatile Bodies, a Salt that is not volatile, except with a considerable Heat. Here the volatile Alkali, of itself indifferent, is, by a saturating Acid, turned into a particular Salt, of the Nature of the Acid employed, which thus regenerates the Body that produced it: Hence we see, that the Volatility of a Salt depends upon the Alkali contributing to its Composition; which Alkali if fixed, the Salt is fixed; if volatile, the Salt is volatile: And that the Nature of the Salt produced depends upon the Acid mixed therein. Hence we have the Method of procuring a volatile Nitre; the Discovery of which has exercised the Labour and Industry of the Chymists of all Ages. The Virtues of the semivolatile Liquor, thus prepared, as far as I could observe, are of the same Kind with those of common Nitre, or the fixed regenerated Kind, though more gentle; and differ only, as the Virtues of Sea-salt differ from those of Sal Ammoniac.

## GLAUBER'S ALCAHEST.

Put the alkaline Salt, prepared according to the fourth Process, in a glazed Dish; and expose it to the open Air, in a cold quiet Place, free from Dust; it will soon begin to run: Pour off what is dissolved into a clean Glass. Again, expose the Remainder to the open Air, and repeat the Operation, till the whole Salt is run into a Liquor. Much Ashes will remain behind; but the Liquor, when strained, becomes clear, alkaline, and thick, like Oil of Tartar per Deliquium.

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This is that famous Liquor of the Chymists, boasted as so great a Secret by its Inventor *Glauber*, who put it off for the true Alcahest; but Secrets once revealed are slighted, and this seems to be the Case here. By all the Experiments I have made, I could never discover any thing particular, and which I did not, also, find in Oil of Tartar per Deliquium, in whatever Case I applied it; but *Glauber's* Alcahest is prepared with more Difficulty, obtained in less Quantity, and comes dearer; and hence, perhaps, pleases better.

## NITRUM NITRATUM.

To eight Ounces of the Lixivium of pure Nitre, put thirty Drops of the strongest Spirit of Nitre; evaporate to a Pellicle, and crystallize after the common manner: Perfect nitrous Crystals will be thus obtained, but of an acid Taste.

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This Process serves to shew how certain Salts may be united, which the Acids themselves afford, into the Form of a compound Salt; and, by adding more or less of the Spirit, the Salt may be made more or less acid; but the more acid it is made, with the more Difficulty it afterwards cries, and keeps dry; being thus always subject to run in the Air. The Nitre, thus



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thus prepared, is advantageously used in burning Fevers, attended with a dry, foul Tongue, and Thirst.

## VEGETATING NITRE.

If, in the Preparation of *Glauber's* Spirit of Nitre, there are taken four Parts of Nitre, and one of Oil of Vitriol, and, after all the Spirit is entirely driven off, the white Salt, remaining perfectly dry in the Retort, be left in the open Air, its Surface will soon begin to be covered with a thick long Down, as if it grew; which Phenomenon I do not remember to have observed in other Salts. But if the Salt be dissolved in Water, strained and evaporated to Driness, in a cylindrical Glass, then kept exposed to the open Air, its upper Surface will often appear thick-set with a kind of actual little branching Plants; all which dissolve away, upon the Application of Heat, so as to leave the Surface even; but upon exposing the Vessel to the open Air, in a quiet Place, they have grown up, as before; thus several times exhibiting the Resuscitation of Plants, as it were, from their own Ashes, of which some of the Chymists have formed so many Fables; and I have sometimes suspected the thing might, perhaps, be done by these means.

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This curious Experiment shews, that the great Disposition which Nitre has to crystallize, affords an Opportunity of imagining a kind of artificial Vegetation, such as some over-credulous Artists have feigned, but never, I conceive, exhibited under the Title of vegetable Resuscitation.

## SPIRIT OF NITRE WITH BOLE.

1. Take a Pound and an half of purified Nitre, reduced to Powder; and four Pounds and an half of common red Bole: Mix them well together; put the Mixture into an earthen long Neck, so as not to rise into the Neck thereof, as the long Neck lies horizontal in the Furnace: Let two of these long Necks be used at once, and lute on their Receivers; apply a gentle Fire, at first, to warm the Matters, and increase a little every Quarter of an Hour, till, by degrees, the Furnace and Vessels become thoroughly hot. A moist Vapour will now begin to come into the Receiver; increase the Fire so far, by degrees, in the Space of half an Hour, till the Vapour comes over redish; and gradually raise the Heat, till the Vapour comes over perfectly red. Continue thus for three Hours; at length raise the Fire so high, till the long Necks grow red-hot, so that the ignited Matter may, in the long Necks, be perceived through the Glass Receivers; and keep the Fire up to this Height for two Hours: Then let all cool; and, as soon as the Necks of the long Necks are cooled, take off the Receivers, with Care to avoid the Fume: Pour the distilled Liquor through a Funnel into a Glass Vessel, which, being exactly fitted with a Glass Stopper, is to be set in a cold Place. This will be a very strong, acid, sharp, and caustic Spirit of Nitre, exhaling very red Fumes, like *Glauber's* Spirit of Nitre, but is never so strong. When the Distillation has been well performed, I have had of this Spirit, nine Sixteenths, in respect of the Nitre employed.
2. The Bole, remaining behind, still retains a Taste of the Nitre. I have boiled the Whole of it in a large Proportion of Water, strained the hot Liquor, and repeated the Boiling with fresh Water, till it would fetch out nothing more: Then, boiling all the strained Lixiviums, which were now clear, and of a nitrous Taste, I evaporated them to a small Quantity, of the Thickness of Milk; it had a Taste not very sharp, but lixivious, as if somewhat alkaline; and, examining it by putting Acids thereto, I found it, in some measure, alkaline, a little changed from the former Nature of Nitre, and yet not true Alkali.
3. Great Care is to be taken in this Operation, that the Coals thrown into the Furnace, during the Distillation, are first thoroughly heated; otherwise they would break the long Necks by the Coldness suddenly driven out of them by the Fire. Hence, Care, also, should be taken upon opening the Door of the Furnace, to feed the Fire, lest the cold Air, entering in too suddenly, should crack the Vessels; and be cautious, likewise, lest, upon opening the Door of the Furnace, the Flame should violently burst out into the Face of the Operator, or be received with the Air into the Lungs.
4. Pure Nitre, by itself, in a Glass Retort, and a Sand-heat, melts long before the Glass; and, when heated so as to melt, it receives no more Heat by increasing the Fire; and, tho' long kept in this State, it affords no acid Spirit, but remains fixed, without considerably exhaling. And if long detained thus in an *Hessian* Retort, and the Fire be violent,

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the Salt, at length, passes through the Pores of the earthen Vessel, without sending any acid Spirit into the Receiver; but is at length almost lost, by transuding through the Vessel.

5. Nitre, mixed with thrice its Quantity of Bole, Brick, or Tobacco-pipe-clay, reduced to Powder, then put into a Crucible, and set in the Fire, does not melt, but fume; affords an acid Vapour; and thus, in a short time, evaporates its greatest Part into the Air.

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1. Hence it is plain, that the Fire, acting upon Nitre, while it is prevented from melting, by the Interposition of thrice its Quantity of a Matter that will not flow in the Fire, has a very different Effect, and heats much more strongly, than when the Salt flows in the Fire; and, therefore, cannot be farther changed thereby. The Change is effected, by rendering a fixed Substance volatile, a mild one sharp, changing a Solid into a Fluid, and a neutral Body into a violent Acid; all which can only be obtained, by preventing the Fusion of the Salt, as, in the seventh Process, we did, by means of Oil of Vitriol, in a Sand-heat. But whether, in the Spirit thus prepared, there is not, also, some Liquor proceeding from the Bole, has been much questioned; principally, because the Bole, once employed in this Operation, is said to be incapable of serving again; for that the Spirit of Nitre cannot hence be obtained. But, certainly, the Spirit of Nitre prepared with the Oil of Vitriol, and that with the Calx of Vitriol, under the Name of Aqua-fortis, and that with calcined Alum, are alike to this, almost without the least Difference; and yet no Bole was employed in their Production. Let the Experiments, therefore, of each Side of the Question, be collected; a longer Time will shew what a short one cannot.
2. Again, some discerning Chymists among the Moderns suppose Nitre to be made up of Alkali, and a particular nitrous Acid, as we explained in the seventh, ninth, and tenth Processes. The incomparable M. *Homburg* has, by a laborious Experiment, and a subtle Calculation, here determined the Proportion of the Alkali to the Acid, to be as four hundred and eighty to an hundred and eighty-three. But here, by Distillation, nine Sixteenths of Acid are obtained, in respect of the Nitre, and yet scarce any Alkali is obtained from the Remainder; whence it certainly appears, that this Acid proceeds from the Nitre, as changed by the Fire, and not by a Separation of the Acid, and the Alkali, pre-existing in the Compound before the Operation; so that the wonderful Action of the Fire here performs what is otherwise effected by the Oil of Vitriol. Since, therefore, true Nitre is never found spontaneous in Nature, and its Spirit never without the Assistance of Oil of Vitriol or Fire, while the Salt is prevented from melting, we conceive that the acid Spirit of Nitre no-where existed in Nature, before the Discovery of the Method of procuring Nitre, and drawing a Spirit from it; so far, we mean, as can be known from chymical Experiments. Thus it was impossible both for Art and Nature to make Gunpowder before the Discovery of Nitre, though even all other natural Things were known, except Nitre alone.
3. But when the red Colcothar of Vitriol, or calcined Alum, is mixed with Nitre in a certain Proportion, so as to hinder from melting in the Fire, and, consequently, fit it to sustain a greater Heat; it thus, also, affords an acid Spirit in red Fumes, in every respect resembling the true Spirit of Nitre, of the present Process, and in a large Quantity. We are here to consider, that the Colcothar, and burnt Alum, conceal a large Quantity of a very strong Acid, called Oil of Vitriol, or Spirit of Alum; and these Acids, being actuated by the Fire, enter the Nitre, separate its Spirit, substitute themselves in its Place, and thus leave, for a Remainder, a *Caput mortuum*, containing that called the *Panacea duplicata*, which is considerably like the Salt produced in the making of *Glauber's* Spirit of Nitre; and this is the Origin of all the Aqua-fortis, whose Production entirely depends upon the Reason above assigned, in the seventh Process. This Transmigration of saline acid Spirits is a wonderful Operation, while one of them, possessing the Place of another, drives the former out, and thus appears to produce unexpected Transmutations. By what we can hitherto learn, Oil of Sulphur made by the Bell, and Oil of Alum, are perfectly the same Acid; having all of them this Property, that they separate all the other known Acids from the Bodies that hold them, render them perfectly volatile, possess the Places thereof, and, driving out the former acid Spirits, form, with the Remainder, a new Body, of its own particular Nature, according to that of this stronger Acid. Aqua-fortis is a mere Spirit of Nitre; Colcothar can, by no Violence of Fire, though ever so long continued, be deprived of all its Acid: Hence the *Caput Mortuum* of Vitriol and Alum abound with a strong Acid, which the Fire cannot drive over; this Acid is attracted by the other Part of the Nitre,



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Nitre, which cannot be converted into Acid; and, uniting with this Part by the Force of the Fire, makes a new kind of Salt, and sends over all the volatile acid Spirit, in the Form of Aqua-fortis. But they who promise, by the Art of Chymistry, to convert the whole Body of Nitre by Distillation, into the Spirit of Nitre, by a true Change of the Whole, so as from a Pound of Nitre to procure a Pound of Spirit, assert a Thing, which to me, seems perfectly impossible, and contrary to the Nature of the Art. I have made various Experiments to assure me of this Truth.

The Spirit of Nitre, of the present Process, *Glauber's* Spirit of Nitre, and the common Aqua-fortis, well prepared, afford a nitrous Acid, distinguished by its red Fumes from all other Acids; and always discovers itself by means of these Fumes, and its particular Odour. When mixed with fixed Alkali, they regenerate a true Nitre.

### FREDERIC HOFFMAN'S FUMING SPIRIT OF NITRE.

In Chymical Authors, there is frequent Mention made of Flame, produced by a Mixture of certain Liquors. Thus *Becher*, in his *Physica Subterranea*, tells us, that Oil of Vitriol, mixed with Oil of Turpentine, excites an intense Heat, attended with Flame; but any one will, upon trying the Experiment, find that it is not so, even though the strongest Oil of Vitriol should be used. An Experiment of the like Kind is mentioned by *Olaus Borrichius*, in *Act. Hassnien. An. 1671. Obs. 71.* in which two Liquors, cold to the Touch, when mixed together, produce a Flame. The Experiment is this:

Take of recent-drawn Spirit of Venice Turpentine, after it is cold, four Ounces; put these in a large Glass, and pour to them six Ounces of recent and generous, but cold Aqua-fortis. Then, agitating the Vessel, leave the Liquor exposed to the open Air; and, in half an Hour's time, thick Clouds of Smoke, and a conspicuous Flame, breaking out at the Mouth of the Glass, will be perceived.

Though I frequently tried this Experiment, by mixing strong Aqua-fortis with Spirit or Oil of Turpentine, I only observed an Ebullition, which was, indeed, intensely hot, and accompanied with a large Quantity of Smoke, but would never flame. But that the Authority of *Borrichius* is not, even in this Assertion, to be doubted of, is sufficiently obvious, from the following Considerations.

Some more than twenty Years ago, having mixed and distilled the best Oil of Vitriol with common Salt, according to *Glauber's* Method; and, instead of common Salt, distilling the same Oil with pure and dry Nitre, by means of a gentle Fire from a Glass Retort, placed in Sand, I obtained a Spirit of a yellowish-red Colour, which smoked strongly; and, by means of its Subtlety, could hardly be confined within the Vessel.

With this Spirit I made various Experiments, mixing it with highly rectified Spirit of Wine, and distilled Oils; upon which there happened a violent Ebullition, accompanied with an intense Heat, and a large Quantity of red and fetid Smoke breaking from the Vessel. Afterwards, pouring it upon a very small Quantity of common Oil of Cloves, casually left in a Glass, there was first an Effervescence produced, and then a small Flame, which only lasted for a Moment. Some Days after, I endeavoured to shew the same Experiment to some Lovers of Chymical Discoveries; but the Effect did not answer my Expectation, without Doubt, because the Glass was not sufficiently covered, but only closed with Wax, which was almost totally consumed by the Spirit. I, therefore, took care that the Spirit should be again distilled, and put into a Glass, which I stopped with a smooth Glass Stopper, that the smoking and penetrating Volatility might be the more effectually preserved. By this means, the Experiment succeeded happily, since a clear and transparent Flame, hardly attended with any Smoke, arose every time this Spirit was poured upon Oil of Cloves.

The Account of this Experiment happening to reach *Leipsic* and *Berlin*, the same Year, two celebrated Men, *Leibnitz* and *Tschirnhausen*, paid me a Visit, and were struck with Surprise, upon seeing the Experiment performed. But, in the *Acta Eruditorum*, I afterwards read, that Dr. *Stare*, of the Royal Society in *England*, sent Word from *Paris*, that Mr. *Hombert* prepared a Spirit, which, when mixed with aromatic and *Asiatic* Oils, produced a transparent and conspicuous Flame. This Experiment was, also, afterwards mentioned by Dr. *Stare*, in the Royal Society, and described in their Transactions. Notwithstanding this, I can safely affirm, that, without any Instruction, I was actually the Inventor of this Experiment. For this Reason the illustrious *Leibnitz*, in his *Theodicaea*, calls this Spirit, *Spiritus Hoffmanni*, and thinks that some of my Disciples had revealed it at *Paris*. Perhaps, also, at one and the same time, this Discovery was made in different Countries; but I am far from aspiring after any Praise on this Account, since the Discovery is rather curious than useful, and only tends to illustrate the Generation of Flame.

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It is prepared in the following Manner;

Take of well-depurated Nitre, such as that of *Russia*, which is free from common Salt, half a Pound; this we render sufficiently dry, in a gentle Heat. Afterwards, we pour upon it, in a Glass Retort, an equal Quantity of highly-rectified Oil of Vitriol; and, distilling by a gentle Sand-heat, we, in a few Hours, obtain this highly volatile and sulphureous Spirit.

If the Nitre is not sufficiently dried, or if it is impure, and contaminated by saline or earthy Parts, a very strong Spirit is at first yielded, which is to be separated; for that which comes over with the Phlegm, is less fit for this Purpose, though, at the same time, it is very useful for making the *Spiritus Nitri Dulcis*. 'Tis, also, to be observed, that this Spirit is always more penetrating and strong, when it is conveyed into the Receiver, not of a redish, but of a yellowish Colour, because the former indicates, that the Nitre is mixed with many heterogeneous Parts.

In the Retort, there subsides a Salt, compacted into an highly solid Form, of a very white Colour, and of a convex Figure, which it receives from the concave Part of the Retort. This Salt is of an highly aqueous Taste, and not without the greatest Difficulty to be dissolved by an aqueous Menstruum. But 'tis surprising, that, by so gentle a Sand-heat, these two Salts, Vitriol and Nitre, which cannot be, without Difficulty, fused by a strong Fire, should be colligated into one highly solid Mass, which, without Doubt, is to be ascribed to these igneous Spirits, excited by the mutual Union of these two Bodies, by means of which, the intimate Union, Mixture, and Colligation, of all the Parts was produced.

With this Spirit I have made various Experiments, by mixing it with distilled Oils; and 'tis observable, that this Spirit, when mixed with the heaviest Oils, such as those of Cloves, Cinnamon, and Sassafras-wood, quickly, and in a Moment, produced a transparent Flame, almost without any visible Smoke. When a small Quantity of this Spirit was mixed with Spirit of Turpentine, in a narrow-bottomed Glass, I observed, that a strong and very hot Smoke, but no Flame, was produced. But if an Ounce of each Liquor is put into a wide-mouthed Glass, and the Mixture shaken, a violent Flame will be produced.

From this Experiment, therefore, duly made, I was convinced that we ought to judge more favourably of the Experiment of *Borrichius*; and that we were not to doubt of its Truth, if the Cautions he lays down are observed, that is, if the Aqua-fortis is recent and generous; and if some Ounces of both Liquors are mixed in a large Vessel. And as this smoking and inflammable Spirit is nothing but a generous, and easily distilled Aqua-fortis, as is obvious from its Colour, Smell, and Virtues, 'tis not to be doubted, but Aqua-fortis, prepared in the common Manner from Nitre and Vitriol, provided the first and strongest of it is set apart, and kept in close Vessels, may produce a similar Effect. *Hoffman. Obs. Phys. Chym. Lib. 2. Obs. 3.*

If there is any highly penetrating and corrosive Liquor, which insinuating itself into all Bodies, corrodes, dissolves, destroys, and changes their Crasis and Mixture, it is certainly the highly acid and concentrated Spirit of Nitre, deprived of all its Phlegm, rendered inflammable, and totally volatile, and by the Application of which, Excrescences, Warts, and preternatural Tumors of the human Body, may be commodiously destroyed and eradicated. Notwithstanding these Circumstances, this Spirit, by the Addition of the volatile Salt of Sal Ammoniac, or Salt of Tartar, is, after its Effervescence, totally deprived of its corrosive Quality, since the Mixture degenerates into a nitrous Salt; which, when dissolved in Water, affords a powerfully diuretic Liquor, excellent for provoking Urine, in serous and cachectic Disorders: Besides, the corrosive Quality of this Spirit is excellently corrected by mixing eight Parts of highly rectified Spirit of Wine with one Part of it; and distilling from an Alembic, by means of a Sand-heat: By which means, there is yielded a Spirit of a fragrant Smell, an acrid penetrating Taste, entirely free from a corrosive Quality, excellently adapted for dissolving and resolving viscid Humours, and, consequently, carminative. This dulcified Spirit, in consequence of the vaporous Sulphur it contains, is, also, possessed of an anodyne and sedative Virtue, highly efficacious in Pains and Spasms; for which Reason it is of far more Use in Practice, than the common *Spiritus Nitri Dulcis*.

The Reason of the Process is this, that highly rectified Spirit of Wine is nothing but a very subtle Oil, intimately mixed with Phlegm; for which Reason, it is united, and intimately mixed with this corrosive Spirit, and both of them, when united, form a Mixture of a third Nature, which, when dissolved in the inflammable Spirit, comes over the Helm, and constitutes the dulcified Spirit of Nitre. But 'tis to be observed, that at least five, six, or eight Parts of the rectified Spirit of Wine, ought to be added to one Part of this Spirit; for if only two or three Parts of the former were used, a violent Conflict would be produced, and the corroding acid Quality of the latter, not totally



totally destroy'd: But, in the Preparation of this Spirit, it is to be observ'd, that the Spirit of Wine is not to be poured into the corrosive Spirit; otherwise a violent Conflict is produc'd, accompanied with a thick red Smoke, which is prejudicial to the Health of the By-standers, and sometimes succeeded by the breaking of the Glass. But when the corrosive Spirit is in small Quantities, and gradually mix'd with the Spirit of Wine, all these Disadvantages are prevented.

This dulcified Spirit, when poured into a Silver Spoon, and set on Flame, leaves behind it a greenish Spot on the Spoon, which is a Proof of an acidulated subtil nitrous Salt: In such a Case, 'tis, therefore, expedient to dulcify this Spirit more, and augment its Virtue, by pouring into it a proper Quantity of the vinous Spirit of Sal Ammoniac: When the Acid of this Spirit is thus corrected, it no longer leaves any Spot upon the Spoon, and its anodyne and sedative Virtues are at the same time rather augmented.

This dulcified Spirit of Nitre differs from the common Sort sold in the Shops, since the former is of a far more penetrating Taste and Smell, and consequently more efficacious. They also differ with respect to the Preparation, since that of the Shops is prepared with Aqua-fortis; and mine with a duly dephlegmated Spirit, impregnated with a vitriolic and highly concentrated Sulphur: My Spirit produces a violent Conflict and Effervescence with highly rectified Spirit of Wine; but the common dulcified Spirit of Nitre none at all: Hence it also happens, that there is not an intimate Union of the Acid of Nitre with the oleous Parts contained in the rectified Spirit of Wine, which happens in my highly concentrated Spirit. In the Preparation of my Spirit, nothing remains in the Cucurbit, but all the Fluid ascends; whereas, in the Preparation of the common *Spiritus Nitri dulcis*, the acid and corrosive Liquor of the Nitre remains after Distillation.

My dulcified Spirit of Nitre, by the Addition of a proper Quantity of the Salt of Tartar, loses almost all its acid Acrimony, and may for this Reason be commodiously mix'd with common Water, for Drink in burning Fevers: Thus, if two Drams of it are mix'd with about two Pints of Spring water, they make a Drink which powerfully allays Thirst, provokes Urine, and procures Sleep. In Inflammations of the Fauces, especially such as attend Quinsys, nothing affords more immediate Relief, than this Spirit mix'd with Sugar, and a small Quantity of the Spirit of Camphire, diluted in common Water, and us'd as a Gargarism. Sugar itself, also, swallowed in a small Quantity, affords Relief in Inflammations of the Fauces.

This dulcified Spirit of Nitre, when mix'd in a small Quantity with rectified volatile Spirit of Hartshorn, acquires a bezoardic and diaphoretic Virtue; for which Reason it is highly beneficial in all malignant Fevers, where Sweating is necessary, *Hoffman, Obs. Phys. Chym. Lib. 2. Obs. 4.*

#### NIX. Snow.

The higher Water rises in the Air, the farther its Parts recede, and the colder it grows; for, in all the habitable Parts of the Globe, the Heat is the greatest, *ceteris paribus*, on the Surface of the Earth; and a freezing Cold is constantly found on the Tops of the highest Mountains, which are covered with Snow, even in the torrid Zone, and the Increase of the Cold is in proportion to the Altitude. Hence the Water, rising to the freezing Height, must necessarily be turned to Ice, unless all its Particles should separate, so as not to touch each other; but, if the Particles should come into Contact, they must begin to freeze into small icy Flakes, floating in the Air. If they should happen to dash against the Surface of any Bodies in their Way, they would constitute a fine Hoar-frost, that would otherwise scarce be perceivable. Whence, therefore, there is a Space in the Atmosphere, concentric with the Earth, where the Water of the Air, when it arrives and unites, is constantly turned to Ice. It is, however, probable, that this Water, being at first little united, can seldom freeze, but remains floating about in its separate Particles, till some Cause happening to unite them, it is then turned into Ice.

The Water of the Air, in Space assigned, growing heavier by a large Quantity coming under less Surface, and being now frozen, it immediately begins to fall downwards into Spaces fuller of Water; where, joining with other aqueous Particles, it gradually forms larger Masses of Snow or Hail; and as there are many different Causes, that may make these Particles of Water, which were dispersed in the upper Air, suddenly unite in large Quantities, it is easy to understand how these Collections, coming into the freezing Height of the Atmosphere, may presently form considerable Masses of Snow or Hail.

Snow-water is found to be the lightest of all Rain-waters; and therefore Snow-water, received at a great Height from the Earth, is the purer and freer of gross ponderous Parts; and if a long-continued sharp Frost shall, at a great Height, convert Water to Snow, after a long-continued clear and dry Season, the Snow, thus formed, will be of the purest Kind, especially if no Wind has disturbed the Air, or intermixed any foreign volatile Particles with it. Thus, if, in these Circumstances, Snow should fall upon a barren sandy Mountain, in a Desert far

remote from any inhabited Place, and the Snow should lie deep; if the upper Part be now carefully collected, it will thus be obtained, as pure as possible; for there can scarcely be contain'd in it either Salt, Oil, or other foreign Substance; so that the Water procured by melting this Snow will greatly differ from all other Water, and be extremely pure, unchangeable, or capable of being kept for Years, as an excellent Remedy against Inflammations of the Eyes.

The antient Alchemists have said, that from such pure Snow there may, by a secret Art, be obtain'd a very red Substance, that by the Force of Fire may be intimately buried and concealed therein. *Boerhaave Chymistry.*

NIX FUMANS. Quicklime.

The white Flowers of Regulus of Antimony are, also, call'd Antimonial Snow.

NIXIA. A Word coin'd from *Nixus*, a Labour-pain, and importing much the same as the *Lucina* of the Antients.

NOAS. Brass, or Copper, *Rulandus.*

NOCASIT. A Sieve, or perforated Vessel. *Rulandus.*

NOCHAT. Copper. *Rulandus.*

NOCTAMBULO. A Person who walks in his Sleep.

NOCTILUCA. The Glow-worm. See *CICENDULA*. Phosphorus is, also, call'd by this Name, because it shines in the dark, or by Night.

NOCTISURGIIUM. Walking in the Sleep.

NOCTUA. The Barn or white Owl. The same as *ALUCO*; which see.

The Flesh, Fat, and Gull, are used. The Flesh cures the Palsy, *Phn* and melancholy Persons, and the like, *Rabbi Moys.* The Ashes of the Bird, burnt entire with the Feathers, being introduced into the Throat, have an admirable Effect in opening and breaking the Impostume of the Quinsy. The Gall absterges Specks in the Eye, and the Fat sharpens the Sight. *Schroder.*

NOCTUINI OCULI. Grey Eyes.

NODOSA, knotted, in Surgery, is an Epithet for a sort of Suture; see *SUTURA*: And for various Bandages, see *FASCIA*. The Gout, also, when it forms Knots at the Articulations, is call'd *knotted*.

NODULUS, in Pharmacy, is a Knot tied on a Rag, including some medicinal Ingredient, or Ingredients, with which the Liquor this *Nodulus* is suspended in, is intended to be impregnated. It, also, imports a Bag, in which Ingredients are included, in order to be suspended in a Diet-drink, or medicated Wine.

NODUS. A Node. A Disease of the Bones. See *Os*.

NOELA-TALI, *H. M.* or *Indian* Barberry-tree with an Orange-leaf. It is a Tree of a moderate Size, grows everywhere in *Malabar*, is always green, and bears a Fruit like our Barberries. Of the Bark of this Tree they make Ropes, as we do of Hemp. The Fruit is esteemed delicious and refrigerating in an high Degree, as are Barberries. The Leaves are accounted an Antidote against the Bite of the Snake, which the *Malabarians* call *Heretimandel*, whose Poison does not cause immediate Death, but an universal Corruption of the Flesh, which putrefies, and falls off; and the Patient, after suffering much Misery, at last yields to Death, unless prevented by the Use of a Drink prepared of a Decoction of those Leaves with the salted Fruit of *Mango* in Water. *Raii H. P.*

NOERA. The Cover of an Alembic, or Vessel for Distillation. *Rulandus.*

NOLA-ILY. A Species of *Dambu* Cane, growing in *Malabar*.

NOLI ME TANGERE. In *English*, Touch me not. A sort of corrosive Ulcer, thus call'd, because it is exasperated by Medicines.

In Botany, *Noli me tangere* is a Species of *Balsamina*.

NOME, *νομή*, from *νέμω*, to eat away. A phagedenic Ulcer.

NONUS HUMERI MUSCULUS PLACENTINI, is the *Teres Minor*.

NORA. Lime, or any Salt, or Nitre. *Rulandus.*

NOSI. See *NEGUNDO*.

NOSOCOMIUM, *νοσοκομῖον*, from *νόσος*, a Disease, and *κομῖω*, to take care of. An Hospital.

NOSOCOMOS, of the same Derivation as the preceding Word. One who takes care of the Sick.

NOSODOCHIUM, *νοσοδοχῖον*, from *νόσος*, a Disease, and *δοχμαί*, to take. An Hospital.

NOSOLOGIA. Nosology; that is, an Explication of Diseases.

NOSOS, *νόσος*, a Disease.

NOSTER. This is frequently us'd by spagirical Writers, as an Epithet for their Gold, their Silver, or any other Substance; by which they would insinuate, that it is not the same as what they mean by the Word, but something peculiar to themselves, which is freed from the Elements, and of an Aërial Nature.

NOSTOCH. A Name for the *COBLIFOLIUM*; which see.



# N U M

NOTHOS, νόθος. Spurious; thus the spurious Ribs are call'd COSTÆ NOTHÆ.

NOTIÆUS, νοτιάς. An Epithet for the spinal Marrow, from νῶτος, the Back.

NOVACULA, in Surgery, is a Knife.

NOVALE, in Paracelsus, is a Prodigy, or Portent.

NUBA, signifies a Species of Manna, or Celestial Dew, of a rosy Colour: Or it imports Brass. *Rulandus*.

NUBES, or NUBECULA. A Cloud in the Urine. A Disorder of the Eye is, also, thus call'd, which is the same as ALBUGO.

NUCAMENTA. Catkins.

NUCES & NARBADOES, a Name for the Palma; *Americana*, *Goffypii folio*.

NUCHA. The Back of the Neck, properly the Region upon the first Vertebra of the Back.

NUCIOSITAS. The same as MYOPIA. *Blancard*.

NUCIPERSICA. The Nectarine.

NUCISTA. The Nutmeg.

NUCLEUS. A Kernel.

NUCULA TERRESTRIS. See BULBOCASTANUM.

NUHAR. Copper. *Rulandus*.

NUMENIUS. The Name of a Bird, the same as ARQUATA.

NUMMULARIA.

The Characters are;

The Leaves are orbicular and conjugated; the Calyx is quinquefid, inclosing a feminal Vessel, and consisting of five long slender Segments; which expand themselves in form of a Star. The Flower is monopetalous, rotated, quinquefid, being cut even to the Nail, or Unguis, and furnished with five Stamina, which, arising from the Circumference of the Base of the Flower, grow together into one, in proceeding from the Wings of the Leaves. The Placenta is seated in the Bottom of the Calyx, and on it grows the Ovary, which becomes a round Vessel closely lodged within the Calyx, and shooting forth a long Tube.

*Boerhaave* mentions two Species of this; which are,

1. Nummularia; Lutea; major. C. B. p. 309. *Boerb. Ind. a. 205*. Nummularia. Offic. Ger. 505. Emac. 630. Raii Hist. 2. 1099. Synop 3. 238. Nummularia vulgaris. Park. Theat. 555. Nummularia supina sive Nummularia Officinarum. Rupp. Flor. Jen. 14. Nummularia sive Centimorbia. J. B. 3. 378. *Lyfimachia humifusa, folio rotundiore, flore luteo*. Tourn. Inst. 141. MONEYWORT.

*Fuchsius's* Figure of this, under the Name of Centimorbia, represents the *Anagallis lutea nemorum*, Pin. much better than the Money-wort; for *Pena* and *Lobel* observ'd these two Plants differed principally in their Leaves, which, in the yellow *Anagallis*, are a little longer, and more pointed. *J. Bauhine* took the Flowers of the Money-wort to be pentapetalous, but they are plainly monopetalous.

Its Leaves are sourish, styptic, and give a deep-red Tincture to blue Paper: The Acid abounds in the Money-wort, and produces with the Earth an aluminous Salt, involved in a little Oil, so that 'tis very astringent and vulnerary. *Camerarius* affirms, that, being boiled with Milk, it is good for the Scurvy. *Tragus* advises to boil it with Wine and Honey, and to give the Decoction to drink to those that have an Ulcer in the Lungs: The same Author commends it in the Dysentery, Loss of Blood, and the Whites. *Fuchsius* prescribes the Herb, applied as a Cataplasm, to dry up Ulcers. *Matthioli* says it is very good for Ruptures in Children. *Martyn's Tournesfort*.

It is one of the principal Vulneraries; the Flowers and Leaves, bruised and apply'd, are effectual in conglutinating all kinds of Wounds and Ulcers; the same, taken in Wine, cure Dysenteries, and Weaknesses, Fluxes, and Humidities of the Belly; they are also good for vomiting of Blood, uterine Fluxes, and all Wounds or Ulcers of the inward Parts, and especially of the Lungs. *Raii H. P.*

2. Nummularia; rubra. J. B. 3. 371. *Lyfimachia, humifusa, folio rotundiore, flore purpurascete*. T. 141. *Boerb. Ind. alt. Plant. Vol. 1.*

It is called Nummularia, from Nummus, Money, because its Leaves are orbicular, like Pieces of Money; it is also named Centimorbia, from centum, an hundred, and Morbus, a Disease; that is to say, a Plant which cures a hundred Diseases.

The Juice of the Herb is like that of *Beccabunga*; for it has a saponaceous, aromatic, and balsamic Taste: Hence it has the same Virtues. It has an Acrimony, which is not ungrateful, mix'd with somewhat aromatic, and of an astringent acid Taste. Hence, it works the same Effect as *Cochlearia*, mixed with *Acetosa*, which we use when we are apprehensive of spitting of Blood. For this Reason it is proper in all sorts of Scurvy, where the Humours are to be render'd more fluid without danger of too great a Resolution, or Tension; for Instance, in an excessive Flux of the Menfes, where a total Stop would be succeeded by an Inflammation; and yet the immoderate Evacuation requires to be restrained, for which Purpose this Herb is very proper. A Decoction of the Leaves, in Wine sweeten'd

# N U X

with Honey, is good for Ulcers of the Lungs, the Fluor Albus, Diarrhoea, Dysentery, Asthma, Spitting of Blood, Hæmorrhoids, and the dry Coughs of Infants: The Powder of the Leaves is good for an Hernia in Infants; and the Leaves, bruised, and applied in the Form of a Cataplasm, cleanse and dry up ferid Ulcers. This Plant resists Putrefaction, generates Pus, is corroborative, and cures many Diseases. For the Arthritis, Podagra, Scurvy, Dropsy, and Jaundice, take an Ounce or two of the Juice in the Morning fasting; it is opening, and purges by Stool and Urine. *Hist. Plant. adscript. Boerhaav.*

NUSIADAT. Ammoniac. *Rulandus*. I suppose he means *Sal Ammoniac*.

NUSTUM, in Paracelsus, is the Cream of Milk; or the Cream-like Substance, which swims on the Top of Urine.

NUTRICATIO. Nutrition.

NUX	{	AVELLANA.	{	AVELLANA.
		BEUIBA.		BEUIBA NUX.
		BEN.		BALANUS MYREPSICA.
		INDICA.		PALMA; INDICA; COCCYGERA; ANGULOSA.

Nux JUGLANS.

The Characters are,

The Leaves are pinnated, and grow to one common Rib, which terminates in an odd Leaf. The Flowers are male, and all amentaceous, consisting of six thick, green, small Leaves, growing to one Pedicle, in form of a Calyx. From the spacious Bottom of these Leaves arise numerous Stamina, which are collected, as it were, into a Cluster; a Multitude of which Clusters, growing to one long Axis, form the floriferous Tail, or Catkin, in a separate Part of the Plant. The Ovary, in another Part of the same Plant, is roundish, furnished with a bifid Tube, and divided into wide, rough, fimbriated, and reflexed Segments; and becomes a Fruit, which, under a pulposus Cortex, contains an ossicous and bivalve Shell, inclosing a fat pulposus Kernel, divided into four Parts by coriaceous Interclosures.

*Boerhaave* mentions five Species of this; which are,

1. Nux Juglans, five Regia, vulgaris. C. B. P. 417. *Tourn. Inst. 501. Boerb. Ind. a. 2. 175. Nux Juglans. Offic. Ger. 1252. Emac. 1440. Raii Hist. 2. 1376. Synop. 3. 438. J. B. 1. 241. Nux Juglans vulgaris. Park. Theat. 1413. Juglans sive Nux Regia. Merc. Bot. 1. 44. Phys. Brit. 62. THE WALNUT-TREE.*

This is usually a large-spreading Tree, with a strait smooth Body, a whitish Bark, and a firm solid Wood; it bears large-winged Leaves, of a yellow-green Colour, of a pretty strong aromatic Smell; they consist usually of seven oval Pinnæ, whereof the two next the Stalk are the least, and the odd one at the End the largest; the Catkins come out early in the Spring, being loose and yellow. The Nuts grow two, three or four together, upon short Foot-stalks, being each covered with a green juicy thick Peel, having under it an hard wrinkled Shell, which parts in two, inclosing a Kernel, consisting of several white Lobes, of a pleasant sweet Taste, included in a thin bitter Skin.

The Walnut-tree is planted in Walks, Parks, and Fields; the Nuts are ripe in September. The Bark of the Tree, the green Peel, the Nuts, and the Shells, are used.

The Bark is a strong Emetic, either green, or dried and powder'd: The green Nuts are cordial, alexipharmac, of great Use in all contagious malignant Distempers, and the Plague itself: They are one of the principal Ingredients in Treacle-water. The Nuts preserv'd are stomachic, and good to be eaten in a Morning, to prevent Infection in the time of pestilential Distempers. Two or three Ounces of the Oil, express'd from the ripe Kernels, is a very good Medicine for the Stone and Gravel. The Shells, powder'd and burnt, are accounted restringent, though but seldom used. *Miller's Bot. Offi.*

Of the Virtues of this Plant *Dioscorides* and *Pliny* speak as follows: Walnuts, eaten as Food, are difficult of Digestion, hurtful to the Stomach, generate Bile, cause Head-achs, are bad for a Cough, [*Pliny* writes thus of dry Walnuts, which are of a more unctuous Nature; for the fresh, he says, are more pleasant] and of Use, eaten fasting, to provoke Vomiting [Instead of this, *Pliny* says, they are prejudicial to those who vomit on an empty Stomach, and are only proper in a Tenesmus by attracting Phlegm]. Eaten beforehand with Figs and Rue, they resist Poison; and subdue it, if taken afterwards. *Pliny* adds, that they are effectual in the Quinsy, being used with Rue and Oil. The free and plentiful eating of them expels the broad Worm: Mixed with a little Honey and Rue, they are apply'd to Inflammations of the Breasts, Abscesses, and Luxations; and with Honey, Salt, and an Onion, they cure the Bitings of Men or Dogs. Burnt with their Calyx, or outer Peel, and apply'd to the Navel, they ease the Gripes. The Shell, burnt and triturated in Wine and Oil, procures a comely Head of Hair to Children, the Part being anointed therewith, and cures an Alopecia: The Kernel within it, being bruised, and applied in Wine, stops the Menfes. The Kernels of very old Nuts, being chewed, and applied to Gangrenes, Carbuncles, an Ægilops, or Alopecia,

are



are a present Remedy. They are mixed with Garlick, and, as *Pliny* says, with Onions, to correct their Acrimony.

The outer Peel of Walnuts is good for the Lichen and Dysentery; and the Leaves, bruised in Vinegar, ease Pains in the Ears. The Antidote of *Mithridates*, which was found written with his own Hand, consisted of two dry'd Walnuts, as many Figs, and twenty Leaves of Rue bruised together, with a Grain of Salt. He who takes this Remedy fasting, can be hurt by no Poison during that Day. *Pliny*.

The Walnut, says *Galen*, is easier of Digestion than the Filberd, and more grateful to the Stomach; and especially when it is eaten with dry'd Figs. This must be understood of the fresh Nut; for, when it is dry, it passes into a pinguious Juice quite unfit to be eaten. The expressed Juice of the outer Peel, either crude, or boiled in Honey to give it a Consistence, being used as a Gargarism, was experienced by *Galen* to be very effectual in a Relaxation of the Uvula, or an Inflammation of the Throat and Tonsils, by virtue of its astringent Quality, in Conjunction with its Fineness of Parts.

Green or fresh Walnuts provoke to Stool. *Galen*, *Aetius*. Old and dry ones are rather binding; they are well concocted in a cold Stomach, but in an hot one are converted into Bile. The inner Bark of the Tree, being dry'd, is a strong Emetic; the Luli, or Catkins, are a more gentle one.

Walnuts have a singular Quality of provoking the Menfes, when suppressed, and all other Medicines fail. They are macerated in Water, till the Kernel may be stripped of their Membranes; after which they are macerated in Aqua-vitæ for two Days; and then two or three of them are exhibited in the Morning fasting, for ten Days together, before the time of the menstrual Flux. The Juice of the Root is said to be a violent Purge, and not fit to be given to any but those of robust Habits.

The distilled Water of immature or green Walnuts is recommended for many Purposes, particularly for dissolving concremented Blood, for Wounds, and hot Ulcers, and for a pestilential Carbuncle, being apply'd outwardly; the Water of Walnut-leaves is effectual for the same Disorders: But *J. Bauhine* justly doubts whether the Water of Walnuts be refrigerating, and consequently proper for a Carbuncle.

Walnuts eaten after Fish are supposed to promote their Digestion, according to that Verse of the *Schola Salernitana*.

*Post pisces nux fit, post carnes caseus esto.*

“After Fish eat Walnuts, after Flesh Cheese.” It is certain, that they resist poisonous Infections, being eaten in Food; for which Reason, in pestilential Times, all sorts of People from the highest to the lowest, both in Town and Country, roast them, and eat them in the Morning fasting.

Green Walnuts gather'd in *May* or *June*, before their Shells harden, and preserved in Sugar, are good for the Stomach; and we have observed, that green and immature Walnuts, taken entire with their outer Coat and Shell, and candy'd with Sugar, or, as the Fashion is, boiled in sugared Water, till they become tender, and afterwards put into the same Water, first boiled to the Consistence of a Syrup, that they might be preserved, being taken to the Number of two or three in the Evening after Food, gently provoke to Stool. The Decoction of outer Peels of Walnuts, being poured on the Ground, attracts Worms from their Holes to the Surface. *Tragus* writes, that some dry the outer Peel, and, reducing it to Powder, use it instead of Pepper for seasoning of Meats, to which some, for the better Relish, add Powder of Sage-leaves.

Walnuts bruised, heated, and pressed, yield an Oil, which some use for Gangrenes, Carbuncles, *Ægilops*, and Ulcers of the Nerves. The same, infus'd into the Ears, cures Deafness, and is good for hot Pains, the affected Part being anointed therewith. But *Matthiolus* says, it is of no Use in Medicine, but in great Request for burning in Lamps, because it is more durable than Oil of Olives. It is preferred, also, by Painters, before Linseed-oil, because this latter, when mixed with Ceruss, in Length of Time, changes Colour, whereas the other preserves it immutable. But the same Author in another Place says, that it is a potent Discusser of Flatulencies, and is very serviceable in Affections of the Colon proceeding from Wind. *Aetius* ascribes the same Virtues to it, as to Oil of Almonds; and adds, that it is particularly serviceable to Gilders and Enamelers; for it dries and preserves the Work for a long time.

The *Isca*, *ισκα*, in *Paulus*, are spongy Bodies, (I suppose he means *Fungi*) growing on Oaks and Walnut-trees, and most in Use among the Barbarians. The same Author says, that the Antients made use of them among other Cauteries, in inveterate Defluxions on the Stomach, and hydropical Cases. The Manner of employing these *Isca* in cauterizing is thus describ'd by *Celsus Aurelianus*: Having made the ligneous *Fungi* narrow or slender, as well in the upper, as in the lower Part, [it would be more convenient to have them wide in the lower Part, that they might stand the better on the Skin] they set them upon the affected Place; and, kindling them at the Top, suffer them to burn, till they are reduced to Ashes, and fall off of themselves. The *Turks*, in Imitation of this Method, at this Day

take a well-dry'd Branch of Vine, and, applying it to the diseased Part, set Fire to its Top. The Walnut-tree, wounded in the Beginning of the Spring, before it puts forth Leaves, discharges a Liquor, which flows in great Plenty, but is not so sweet as that of the Birch-tree.

*Juglans* is thought by some, as *Macrobius* says, to be derived *a juvando*, from helping or benefiting, and *Glans*, a Nut; importing, that it is a beneficial Nut; but it was doubtless so called, as implying the same as *Jovis Glans*, the Nut of *Jupiter*: Thus is *Juglans* derived from *Joviglans*, in the same manner as *Jupiter* from *Jovipater*. For, as we say, *Marspiter*, and *Dieuspiter*; so, also, we say, *Jovipater*, or *Jovispater*, where *Jovis* is the antient nominative Case.

The *Juglans* however is not the *Διὸς βλάανος*, *Glans Jovis*, of *Theophrastus*, which is rather the Chestnut-tree, but, as some will have it, the *Nux Persica*, or, as others, the *Nux Euboica* of the same Author. The *Juglans* is called *Nux Basilica Regia* by *Dioscorides* and *Galen*, and *Persica* and *Basilica* by *Pliny*. The Walnut, it is agreed, says *Pliny*, *Lib. 15. Cap. 22*. was called *Caryon* [καρυον from καρυα, the Head] from an Heaviness or Oppression of the Head, which it occasions by its strong Smell. *Raii H. P.*

2. *Nux Juglans*; fructu maximo. *C. B. P.* 417.

3. *Nux Juglans*; fructu tenero, & fragili putamine. *C. B. P.* 417.

4. *Nux Juglans*; fructu serotino. *C. B. P.* 417.

5. *Nux Juglans*; Virginiana, nigra. *H. L.* 452. *Boerh. Ind. alt. Plant. Vol. 2.*

*Nux Moschata*. *Offic. Ger.* 1353. *Park. Theat.* 1600. *Raii Hist.* 2. 1522. *Nux Moschata rotunda, five Femina*. *Ger. Emac.* 1536. *Nux Moschata fructu rotundo*. *C. B. P.* 407. *Nux Moschata, Nux Myristica, Nucifera*. *Mont. Exot. Nux Aromatica*. *J. B.* 1. 265. *Pala. Pis. Mant. A.* 173. THE NUTMEG-TREE.

This is the Fruit of a Tree, which grows principally in *Banda*, an Island in the *East Indies*; it is about as big as a Pear-tree, with fragrant Leaves, like those of the Peach-tree, but broader, and not serrated about the Edges; it bears yellowish five-leaved Flowers, which are succeeded by Fruit, in Bigness and Shape, like small Peaches, whose outside Covering is soft and juicy, like that of a Walnut; under which lies the Mace, firmly sticking to the hard woody Shell, that includes what we call the Nutmeg, which is of an oval Shape, brown, and somewhat rough on the Outside, and wrinkled, and whitish, and marbled with red Veins within, of a most pleasant aromatic Smell and Taste: The best are firm and weighty, and, being pierced by a Needle or Pin, emit an oleous Substance. *Miller's Bot. Off.*

It is the Opinion of some, among whom is *C. Bauhine*, that what the Moderns call *Nux Moschata*, or *Myristica*, was unknown to the Antients. *J. Bauhine*, and *Gallandinus*, fancy it to be the *Comacum* of *Theophrastus*, and the *Cinnamum* and *Caryopos* of *Pliny*; and *J. Bauhine* conjectures it to be the *Chrysobalanos* of *Galen*.

*C. Bauhine* makes three Species of this Tree: The first is the *Nux Moschata fructu rotundo*. *C. B.* *Muscata rotunda five Femina*. *Ger. Nux aromatica Femina*. *J. B.* The Female Nutmeg-tree.

This Tree grows spontaneously, and in vast Plenty, in the Island *Banda*, and no-where else, if we may believe *Pisô*. Some make *Banda* to be one of the *Molucca* Islands; but most make it a distinct Island. It is situated near the Equator, and extended from North to South in a curve Direction, being almost of the Figure of an Horseshoe, three Leagues in Length, and one in Breadth. The Tree is long-liv'd, always green, and flowering, and loaded with Nuts, some riper than others; and yields its Fruit twice, and sometimes thrice in a Year. The first Harvest is in *August* and *September*, the second about *March*, and the third happens in this, or that Month, as the Weather proves more or less favourable. The Nuts must not be gathered before they are thoroughly ripe, otherwise they are less durable: When gathered, they are stripped of their outer Shell, and dry'd first in the Sun; after which the Mace is taken off, and then the Kernels, which we call the Nuts, are washed with Lime, which is their only Preservative against Corruption, and all external Injuries, and fit to be transported by long Voyages into all Parts of the World. The best are of a Sad-red, inclining to an Ash-colour, and intermixed with whitish Striae.

The Fruit is devoured by several Sorts of Birds, but especially by a small and white Kind of Pigeon, which, when the outer Shell gapes, being allured by the Sweetness of the Mace, seize upon it together with the Nut, and swallow it whole, never desisting till they are thoroughly glutted: These Nuts are afterwards voided by the Birds entire, and being premacerated with the Heat of the Craw, soon bud forth. But the Trees thence arising, as being of too hasty Growth, are easily subject to Corruption, and bear a Fruit which is much less esteemed, than that of the others, and therefore, neglected by the Inhabitants, except the Mace which they use in adulterating the better Sort. *Clusius* says, that the Mace is, at first, of so beautiful a Red, as to strike the Eye with Admiration; but, being exposed to the Air, loses its Beauty by



by degrees, and at length contracts a yellowish Colour. The second Species is the

*Nux Moschata fructu oblongo. C. B. Myristica oblonga sive Mas. Ger. Nux Aromatic. J. B. Pala Metfiri Moluccensis.* The Male Nutmeg-tree.

It is not called *Male* on account of its superior Excellency and Virtues, as tho' Nature had made it bigger and longer, on purpose to shew its Eminence in Worth; for, as *Piso* says, the Case is quite otherwise, since the Nuts of this Tree do not so much exceed those of the other in Bulk, as they are surpassed by them in their aromatic Virtue, and all the Qualities which belong to the genuine and more noble Kind of Nutmeg. But the common People give it the Title of *Male*, not for any Reason, but from a superstitious Opinion, that the oblong Nut, eaten by Men, is a potent Stimulus and Strengtheners to Venery. As for the Mace, tho' it be, also, of a very beautiful Colour, it is of so weak Virtues, that it is of no Value where it grows, and the Tree itself is neglected, as wild and degenerate.

This Tree is described to have longer, thicker, and more fibrous Leaves, than the other: The Nuts are larger, and not only oblong, but almost square, and grow not from the Interstices of the Branches, as the others, but out of the Tops, three or four together, like Walnuts; the Mace, also, when dry'd, is of a more beautiful Colour.

Nutmegs are somewhat astringent, stomachic, cephalic, and uterine; they disperse Flatulencies; promote Concoction; correct a stinking Breath; cherish the Fœtus; and relieve under a Lipothymy, and Palpitation of the Heart; alleviate Disorders of the Spleen; stop a Looseness and Vomiting; provoke Urine; and sharpen the Sight. *Aetius* writes, that they are bad for the Lungs. They may justly be recommended in a Dysentery, and other Kinds of Fluxes, since they possess all those Qualities, which are necessary for subduing those Disorders. Their only Substance defends the Intestines from Abrasions by acrid Humours, and mitigates Pains; their aromatic Quality, consisting in an aereal Spirit, penetrates the noble Parts, and highly corroborates them; and their terrestrial Part astringes and dries up Ulcers, and induces a Cicatrix. *Hilaan. de Dysent.*

The *Brachmans* use candy'd Nutmegs for all cold Diseases of the Brain, the Palsy, and other nervous and uterine Affections; they are, also, esteemed cordial. Nutmegs candy'd, or preserv'd in Sugar, have now, for a long time, been imported among us, and served up at rich and plentiful Tables among other Sweetmeats; and some of a more delicate Palate are pleased only with the exterior green Coat, or Peel; and prefer it, while quite immature, to the Nut itself, both on account of its Fragrancy, and its grateful Taste, which is accompany'd with an Annuigency, that is very agreeable to the Stomach. Experience, however, has taught us, that such Delicacies are not without their Inconveniences, whether the Peel be eaten alone, or together with its inclosed Nut. For they are endued with a narcotic Quality, and that to a considerable Degree, by virtue of which, if too freely or frequently used, they may induce soporose or comatose Disorders. Hence we are told, by *Tavernier*, with an Air of Probability, that when the Nutmegs begin to ripen, the Birds of Paradise, so called, who are very greedy of those Fruits, fly in great Flocks to the *Moluccas*, as the Thrushes, in the time of Vintage, into *France*. But they frequently pay dear for their delicious Fare; for, being seized with a Vertigo, they fall to the Ground, as in a drunken Fit, and have their Legs eaten, in a short time, by the Ants.

That the Nuts themselves, when dry'd and used immoderately, are possess'd of the same Quality, is obvious from a Case told by *Lobelius*, who informs us, that he was called to *England*, in order to attend a pregnant Lady of Distinction, who, by greedily eating twelve Nutmegs, as if they had been as much Bread, was seized with a kind of Delirium, or rather Intoxication; but, after sufficient Rest and Sleep, she recovered by means of Repellents applied to her Head.

*Tachenius*, in his Book *de Morborum Principe*, informs us, that the Wound of a certain Soldier was soon consolidated by the internal Use of Nutmeg. *Le Fevre* and *Hedelius*, also, commend this Fruit for the Consolidation of Wounds. *John Bauhine*, when travelling on the *Apennine* Mountains, having greedily drank a Draught of cold Water, was suddenly seized with violent Pains in his Bladder, accompany'd with Flatulencies, and a Tumor of the Scrotum, tho' without any previous or subsequent Hemia. When his Pain was so intense, that he imagined he should have dy'd on the Mountain, his fellow-traveller, *Oswald Gabelkover*, gave him some Nutmegs, by eating four of which, he was instantaneously freed from his Pains.

According to *Ettmuller*, Nutmegs chew'd and swallowed are an excellent Remedy for a Palsy of the Parts subservient to Deglutition.

From recent Nutmegs, bruised and heated in a Pan, an Oil is expressed, which is highly beneficial in many Diseases. Thus, for Instance, when exhibited in some warm Liquor, it removes Gripes, and nephritic Pains. When apply'd by way of Ointment to the umbilical Region of Children, it removes Gripes. Long-continued Pains of the Nerves and Joints are remov'd by

anointing the Parts affected with it; and, if the Temples are anointed with it, it gently induces Sleep.

A great many of the modern Botanists, probably induced by the Resemblance of the Names, confound the *Mace*, which is the second Covering of the Nutmeg, with the Mace of the *Greeks*, whereas these are widely different from each other; for the Mace is the Bark of a Root produced in *Malabar*, of a cold and earthy Nature, and for that Reason appropriated to the stopping of Fluxes. The *Mace*, or Mace, on the contrary, is the Covering of the *Indian* Nut, of an highly aromatic Nature, and possess'd of a great Degree of spirituous Heat; for which Reason it is generally used against cold Disorders, and those produc'd by Poison. Before the Mace is perfectly ripe, and as yet of a beautiful scarlet Colour, it is commonly preserved with Salt and Vinegar by the *Indians*, and presented as the first Dish, in order to excite an Appetite for the subsequent Repast. But, after the Mace is ripe, it is taken off the Nutmeg, dry'd in the Sun, and carefully preserv'd. Its Smell is always grateful, but, when 'tis recent, 'tis in a particular manner agreeable. Its Taste is a kind of Mixture between Bitter and Sweet, and leaves a sort of Dri-ness in the Mouth behind it. The same Virtues with those of the Nutmeg are ascribed to it; but, because its Parts are more small and minute, it is thought to operate more effectually, and to be possess'd of a more penetrating Quality.

Tho' Mace yields a smaller Quantity of Oil than Nutmeg; yet that of the former is preferable to that of the latter, and is more commended in Disorders of the Nerves, and other cold Distempers; and, which is still more surprising, *Cronenburgius* informs us, that it cures the Gout, if the Part affected is anointed with it.

In order to expel Wind, shut up in the Uterus, take a sound Nutmeg; cut it into four Parts; throw one of them upon live Coals, and let the Patient receive the Smoke through a Funnel, into the Uterus. Let this Method be repeated three times. *Hartman* cured a young Woman at *Bonn*, upon the *Rhine*, by this Method. *Dr. Hulse*.

*Nux Myristica major spuria Malabarica. Panem palka. H. M. Avellanae Indicae genus oblongum. Clus. Nux Indica oblonga intrinsecus similis Nuci Moschatae. J. B. Palma cujus Fructus oblongus Fausel similis. C. B. Malè Palmam vocat. Arecae sive Avellanae Indicae versicoloris genus oblongum. Park.*

This Tree grows every-where in the Woods of *Malabar*; and bears ripe Fruit once or twice every Year, that is, in the Months of *June*, or in *December*, and *January*. It, also, bears Fruit for a long time.

Tho' these Nuts are of no Use in Medicine, yet the *Turkish* and *Jewish* Merchants mix them with Nutmegs, and their Mace with genuine Mace, in order to impose upon those who purchase those Commodities: From these Nuts, and their Mace, they, also, express the Oil, and mix it with the true Oil of Nutmeg.

**NUX PISTACIA.** The Pistachio. See **TEREBINTHUS**; *Indica*; *Theophrasti*.

**NUX VIRGINIANA.** Offic. *Prunifera vel Nucifera sen Nuciprunifera Arbor Americana præcelsa, angustis Lauri foliis latè virentibus, Mastichen odoratum fundens.* Pluk. Almag. 307. Phytog. 217. Fig. f. 5. Cat. Jam. 180. Sloan. Hist. 1. 40. Raii Dendr. 44. **THE VIRGINIA NUT. MASTICH OF LIGON.** *Dale*.

It has smooth and shining Leaves, like those of the Bay-tree; and differs from other pruniferous Trees in its Fruit, which is small, turbinate, and contains but a little Pulp. It grows every-where in the Island of *Barbadoes*.

The Part in Use is the Fruit, which is nearly of the Shape and Size of the Kernel of a Filbert, smooth, of a brown Colour, with an Eye near one End, and containing an hard Stone, which incloses a white, globular Kernel, of a bitterish Taste, and aromatic Smell.

It potently opens Obstructions, depurates the whole Mass of Blood, and corrects a scorbutic and bad Habit of Body, by impregnating the vital Liquor, the Blood, with those volatile Salts, which exalt it from its low and vapid State to a more pure and spirituous one, and, by that means, preserve it from Stagnation: It, also, clears the Skin of Spots, and all other Defections. *Marl. Obs.*

**NUX VOMICA.** Offic. Ger. 1362. Emac. 1546. Park. Theat. 1601. Raii Hist. 2. 1814. *Nux Vomica, Nux Metella.* Mont. Exot. 10. *Nux Vomica in Officinis.* C. B. P. 511. *Nux Vomica vulgè Officinarium, compressa, Firsuta.* J. B. 1. 339. *Caniram.* Hort. Mal. 1. 67. Tab. 37. *Malus Malabarica fructu corticoso, amaricante semine plano compresso.* D. Syen. Raii Hist. 2. 1661. *Solanum arborescens Indicum maximum foliis Oenophæ, sive Napææ majoribus, fructu rotundo, rubro, semine orbiculati compresso maximis; Nucis Vomicae & Lignum Colubrinum Officinarium ferens.* Breyn. Prodr. 2. 92. Commel. Flor. Mal. 249. *Malus Indica venenata amara nucleis argenteis compressis orbiculatis; Ghodhakadura; Nux Vomica Officinarum.* Herm. Mus. Zeylan. 41. **VOMIC-NUTS.** *Dale*.

These are flat round Seeds, about the Bigness of a Silver Groat in Circumference, somewhat thick, and a little concave on the one Side, and convex a little on the other, of a greyish Colour, and a little downy on the Outside, but hard and horny within: They are the Seeds of a large round Fruit, growing in *Malabar*, upon an arborescent



rescent Solanum, having Leaves like the white Jujube, with Flowers in small Umbels, which is the *Lignum Colubrinum tertium Acoſtae* of Parkinson. *Miller's Bot. Off.*

It is improperly called *Nux Vomica*, since it does not excite Vomiting. Some have erroneously thought it a Root, others a Fungus; but, by the Description, it appears to be a Fruit, though whether of a Tree, or an Herb, is uncertain. Some will have the *Metel* of the *Arabians* to be the same with the *Nux Vomica*; but their Descriptions do not agree.

The *Nux Vomica* is narcotic, virulent, and even worse than Opium. Reduced to Powder, and given in Food, it kills Dogs and Cats: Instances of which you have in *Gesner* and *J. Bauhine*; to which we shall add what *Dr. Hulse* communicated to us, taken from the Observations of *Antonius de Hude*. I gave two of these Nuts, says he, cut small, and mixed with Bread and Butter, to a Dog, who greedily eat them: Half an Hour afterwards he filled himself with boiled Bones and Cartilages; but in half an Hour more he was seized with an universal Trembling, and ran about from Place to Place, could not stand without Support, and his Legs were stiff, and affected with Convulsions. At the End of the third Half-hour he fell down as dead, and soon after began to fetch his Breath very short; and, with Assistance, got upon his Legs: He seemed to shiver at the least Noise, and to fetch his Breath the shorter: In this State he lived out the fourth Half-hour, and at last died suddenly. In dissecting the Carcase I made the following Observations: The Stomach was very full of Food, mixed with Bits of the Nuts, which did not seem to have undergone any Alteration, except that they were softer, which was, also, the State of a Bit of Nut that had lain, during the same time, in hot Water. The Stomach, Oesophagus, and Intestines, were in their natural Constitution; the lacteal Vessels in the Mesentery were turgid with Chyle, the Lungs were redder than usual, and the Ventricles and Auricles of the Heart were more tumid than they ought to appear. After dissecting the Right Ventricle of the Heart, on straining the *Vena Cava ascendens & descendens*, there flowed out a great Quantity of Blood, which immediately coagulated in the Cavity of the Thorax; about the Brain nothing preternatural could be observed. A Cat, after taking a Nut, which had been macerated for some time in Water, and in part decorticated, was affected with the same Symptoms as the Dog before-mentioned, as was, also, another Dog, which had only eat up the Reliques which the Cat had left. I had no Opportunity to ascertain the just Quantity of the Dose required for killing an Animal; but, from what I have observed, I am inclined to think, that this virulent Nut exerts its Influence, chiefly, in infecting the Fluid which irrigates the Brain and Nerves; for to such a Cause may be easily ascribed the Restlessness, Rigor, Convulsions, Horror, Trembling, and irregular Respiration. The fore-mentioned Symptoms deter me from making Experiments with this Nut on human Creatures, though some pronounce it noxious to Brutes, and not to Men: But let them say what they please, I cannot in the least doubt, but that it will have the same destructive Effects on Man, as on other Animals: On Birds, it is certain, it has the same pernicious Influence as on Beasts; for the People of our Country are wont to lay Bits of Flesh, sprinkled over with the Powder of this Nut, as Baits for Crows, Rooks, and other mischievous Birds, and so destroy them. *Adolphus Occo*, in *Pharm.* tells us, that *Julius Alexandrinus* wrote to him, that the *Nux Vomica* ought utterly to be discarded, and not admitted into any Composition, because it would always be deleterious, and prejudicial to the human Nature, under what Shape soever, and could never be render'd beneficial to the same. I am mightily pleased, says *J. Bauhine*, with that very learned Gentleman's Opinion; nor did I ever find any Person who could assure us from his own Experience, that any laudable Effects were produced by the Use of these Nuts. Upon these Considerations, our later Physicians, in their Dispensatories, have justly omitted it in their Descriptions of the *Electuarium de Ovo*. The *Nux Vomica* is reduced to Powder by rasping, and not by pounding in a Mortar, because of its horny Substance. *Raii Hist. Plant.*

NYALEL. H. M. *An Sambucus Indica Bontii? Arbor bac-cifera racemosa, Fructu corticosa, diplyreno.* It rises to the Height of forty Feet, and grows in *Malabar*. The Fruit is esteemed a Delicacy; the Kernels, bruised with fresh Ginger, and Sugar added thereto, provoke to Stool. Of the Juice of the unripe Fruit with Sugar is prepared a Syrup, which is very serviceable in the Cough, Asthma, and other Affections of the Thorax. *Raii Hist. Plant.*

NYCTALOPS, *νυκταλωπ*, from *νύξ*, Night, and *ὤψ*, an Eye, or so called, as being *τῆς νυκτὸς ὁπταδὲ ὤψι*, *captus Oculis Noctē*, (blind by Night) according to *Paulus* and *Aetius*, is one who sees not at all by Night, and but obscurely at Sun-setting. Such an one, they say, in *Latin* is called *Lusciosus*, or *Nusciosus*; but *Lusciosus* is one who sees but little through some Defect of the Eye, and sees better in the Evening than at Noon. *Varro* calls these *Lusciosi*, who see not in the Evening; and *No-nius*, by the same Name, those who see not by Candle-light; and *Pliny*, *Lib. 28. Cap. 11.* calls those *Lusciosi*, which the Greeks call *νυκταλωπες* (*Nyctalopes*); and these, *Lib. 8. Cap. 50.* he de-

scribes as seeing in the Day-time, but not by Night, or by Twilight: The same Signification is given to the Word *Nyctalops*, by *Galen*, in his *Exegesis*, and by *Actuarius*, *Metb. Med. Lib. 2. Cap. 7.* where he says, also, that this Disorder is generated by a Collection of thin Humours, which in the Day-time is prevented by the copious Appulse of the Light, but at Night casts a Mist before the Sight.

In a contrary Sense to the foregoing, *Hippocrates* calls those *νυκταλωπες*, *Nyctalopes*, who see best by Night, and worst by Day; and this Sense of the Word is, also, taken notice of by *Aetius*, when he says they are, also, called *Nyctalopes*, who see pretty well by Night, but worse by Day, and by Moon-light nothing at all; but this Disorder, he assures us, is very rare, but the other common enough. The Author of the *Definitiones Medicæ* says, that "A *Nyctalops* is an Affection of the Eyes, without a manifest Cause, in which the Patient sees nothing in the Day-time, but sees in the Night." And the Author of the *Isagoge* comprehends both Significations, where he tells us, "They are called *Nyctalopes* who see but obscurely in the Day-time, but more clearly at Sun-setting, and at Night best of all; or, on the contrary, they are such as see but little by Day, and in the Evening, and at Night, nothing at all." *Foesius*.

NYCTERIS, *νυκτερίς*. The Bat.

NYGMA, *νύγμα*, a Puncture, from *νύσσω*, to prick.

NYMPHÆ.

*Galen*, and other antient anatomical Writers, sometimes call the Clitoris, and sometimes the Hymen, by the Name of *Nympha*; but what the Moderns call *Nympha*, *Cristæ Clitoridis*, or, as they may, also, be termed, *Alæ Minores sive Internæ*, are two prominent Folds of the inner Skin of the greater external *Alæ*, reaching from the Præputium of the Clitoris to the two Sides of the great Orifice of the Uterus: They begin very narrow, and, having increased in Breadth, in their Course downward, they are again contracted at their lower Extremity.

They are of a spongy Substance, intermixed with Glands, several of which may be perceived by the naked Eye. Their Situation is oblique, their upper Extremities lying near each other, and the lower at a much greater Distance. In married Women they are more or less flaccid and decayed. *Winslow's Anatomy*, *Secl. 8.*

#### THE METHOD OF TREATING THE NYMPHÆ, WHEN TOO LARGE.

The Nymphæ are sometimes so large, as not only to hang without the Labia Pudendi, but, likewise, to prove troublesome in Walking, Sitting, and even in Coition. In this Case, let the Patient be laid on her Back, with her Legs distended, and the Labia Pudendorum open'd: Then let the Operator, with his Left Hand, take hold of the Nymphæ one after another, and with a Pair of Scissars, cut off as much as may be necessary, taking care to be provided with Styptics for preventing an Hæmorrhage, and Medicines for relieving the Patient from fainting. The Wound may be afterwards dressed with some vulnerary Balsam, and easily healed in the common Method. *Solingen*, in his *Obs. 80. de Morb. Mulier.* gives us a Case, in which the Nymphæ were extirpated, after they had begun to be affected with a Mortification.

NYMPHÆA.

The Characters are;

It has a great perennial Root, which grows in the Bottom of Rivers; the Leaves are thick, fungous, and mostly orbicular. The Calyx consists of five floscular Leaves, disposed in form of a Rose. The Flower is rosaceous, consisting of many small, yellow, stiff Petals, expanded like a Rose; within these are situated a vast Number of Stamina, which arise from the circular and outwardly curve Joining of the Ovary and Placenta. The Fruit is globular, urceolated, multicapsular, like that of the Poppy, and contains many small oblong Seeds.

*Boerhaave* mentions two Species of this Plant; which are,

1. *Nymphaea*; lutea; major. *C. B. P.* 193. *Tourn. Inst.* 261. *Boerb. Ind. alt.* 281. *Park. Theat.* 1252. *Nymphaea lutea*. *Offic.* *Ger.* 672. *Emac.* 819. *J. B.* 3. 771. *Raii Hist.* 2. 1319. *Synop.* 3. 368. YELLOW WATER-LILY. *Dale*.

The yellow Water-lily pretty much resembles the white, in its manner of Growth; only the Leaves are somewhat longer; lying, also, on the Top of the Water: The principal Difference is in the Flower, which in this is yellow, and less than the white, made of five round Leaves, with several Chives in the Middle, of the same Colour. The Seed-vessel is large, resembling a Bottle, with a Crown like the Head of a Poppy, growing on the Top, full of Seed, which is larger than the white: This grows in the same Places with the white, and is much more frequent.

It is much of the Nature of the white, but is accounted the weaker of the two: It is, also, cooling and anodyne, and good in delirious Fevers, and for the Heat and Sharpness of Urine. *Miller's Bot. Off.*

2. *Nymphaea*; lutea; minor; magno flore. *C. B. P.* 193. *Boerb. Ind. alt.* *Plant.*

*Nymphaea alba*. A Name for the *Leuconymphaea*.

[ O \* ]

*Nymphaea*,



# N Y M

*Nymphæa, alba, minor.* A Name for the *Leuconymphæa; minor.*  
*Nymphæa, minor, lutea.* A Name for the *Micronymphæa,*  
*quæ Nymphæa lutea, minor, parvo flore.*  
*Nymphæa flore minimo.* A Name for the *Microleuconymphæa,*  
*quæ Nymphæa; alba; minima.*  
*Nymphæa, lutea, minor, flore fimbriato.* A Name for the  
*Nymphoides; aquis innatans.*  
 It is called *Nymphæa*, because it lives in Waters, where the  
 Nymphs are feigned by the Poets to inhabit.  
 The Plant is of a nitrous, pargoric, aperitive, moistening,  
 refrigerating, and somewhat narcotic Quality. The Juice is  
 drank in Inflammations of the Kidneys and Bladder. Of the  
 Flowers is prepared an Oil, which has the same Virtues as Oil  
 of Olives, or Oil of Roses. The Leaves bruised make an ex-  
 cellent Cataplasm for inflamed Parts; and a Decoction of the  
 Roots and Flowers is beneficial in burning Fevers, by refrige-  
 rating; and the more, if the same Remedy be applied to the  
 Soals of the Feet, and the Groins. Of the expressed Juice of  
 the Stalks, Leaves, and Fruit, boiled, is prepared a Syrup,  
 which is a most efficacious Remedy for a Gonorrhœa, and not  
 the less proper when the Disorder is attended with an immode-  
 rate Heat; for it was always a celebrated Medicine for Heat of  
 Urine. This Syrup partakes somewhat of a narcotic Quality,  
 and is, therefore, extolled as a Specific in want of Sleep; it,  
 also, prevents nocturnal Pollutions, and extinguishes Thirst.  
*Hist. Plant. adscript. Boerhaav.*

# N Y X

*NYMPHÆA*, also, imports a preternatural Excrecence of  
 the *Nymphæa*.  
*NYMPHODOTI PASTILLUS.* The Name of a Pastil,  
 described by *Paulus Ægineta*, L. 7. C. 12.  
*NYMPHOIDES.*  
 The Characters are;  
 It is in all respects like the *Nymphæa*, except that its Flower  
 is monopetalous and robated, and its Fruit oblong, compressed,  
 soft and unicapular.  
*Boerhaave* mentions one sort of this, which is,  
*Nymphoides; aquis innatans.* T. 153. *Nymphæa, lutea, minor,*  
*flore fimbriato.* C. B. P. 194. J. B. 3. 772. *Nymphæa, alba,*  
*minor.* Lugd. 1009. *Boerb. Ind. alt. Plant.*  
 It is called *Nymphoides* from its near Resemblance to the  
*Nymphæa*, both in Form and Virtues; it is of singular Efficacy  
 in Hæmorrhages. *Hist. Plant. adscript. Boerhaav.*  
*NYMPHOMANIA.* The same as *FUROR UTERINUS.*  
*NYMPHOTOMIA, νυμφοτομία.* A Section of the *Clitoris*  
 when too large; for by the Antients the *Clitoris* was called  
*Nympha*.  
*NYSADIR.* Sal Ammoniac.  
*NYSTAGMOS, νυσταγμός.* A Winking, or Twinkling  
 with the Eyes; such as happens when People are excessively  
 sleepy.  
*NYXIS, νύξις.* A Puncture.

# O.

# O B L

**O.** For the Signification of O in the chymical Al-  
 phabet, see ALPHABETUM CHYMICUM. O is  
 the Character for Alum; and three o° is the  
 Character for Oil.  
*OBELÆA, ὀβελαία,* from ὀβελός, a Dart. An Epithet  
 for the Sagittal Suture of the Skull.  
*OBELCHERA.* A Cucurbit. *Rulandus.*  
*OBELISCOTHECA.* Dwarf *American* Sun-flower.  
 The Characters are;  
 It hath radiated Flowers, having many Florets, which are  
 fertile, but the Half-florets are barren. The Placenta is com-  
 monly conical, and filled with chaffy Empalements, which  
 appear folded up, in each of which is an Ovary, which is  
 shaped like an Obelisk reversed, having an hollow Base. These  
 Parts are contained in one common Flower-cup, which is  
 deeply cut into several Segments, and expands in form of a  
 Star. The Leaves are placed alternately.  
 The Species are;  
 1. *Obeliscotheca integrifolia*, radio aureo, umbone atro-  
 rubente. *Hort. Elth.*  
 2. *Obeliscotheca doronici folio*, radio purpureo, umbone  
 atro-rubente.  
 These are *American* Plants, the first being brought from *Vir-*  
*ginia*, and the other from *Carolina*; but they are of no Use in  
 Medicine that I know *Miller's Dict.*  
*OBSITAS.* Fatness, or Corpulence. The Causes of Obe-  
 sity are already consider'd under the Article *FINNA*, whence  
 the proper Methods of Cure may, likewise, be collected.  
 It is remarkable, that for one corpulent Person in *France*, *Hol-*  
*land*, or *Spain*, there is a hundred in *England* and *Holland*. This  
 I apprehend arises more from the habitual Use of new and secu-  
 lent Malt-liquors, in which the oleous Part is not sufficiently  
 attenuated, than to any Difference in the Climate, or Degrees  
 of Perspiration. Corpulence is said to be reduc'd by a frequent  
 Use of Camphire. Cyder is esteem'd a proper Liquor to pre-  
 vent exorbitant Fatness.  
*OBLATÆ* *Purgantes* are figur'd cathartic Cakes, made  
 of fine Flowers, Sugar, and purging Ingredients. They are  
 much the same as *HOLIPPÆ*.  
*OBLIQUUS.* A Name for several Muscles, two Pair of  
 which, the *Obliqui Ascendentes*, and *Descendentes*, belong to  
 the *Abdomen*, and are described under that Article.  
*OBLIQUUS SUPERIOR SIVE MINOR.*  
 This Muscle is situated laterally between the Occiput and

# O B S

first Vertebra, being nearly of the same Figure with the two  
*Recti*. It is fixed to the End of the transverse Apophysis of  
 the first Vertebra; whence it runs upward, and very obliquely  
 backward; and is inserted in the transverse Line of the Os Oc-  
 cipitis, almost at an equal Distance from the Crista and Ma-  
 stoidæ Apophysis, between the *Rectus major*, and *Complexus*  
*minor*, which covers it a little.  
 The *Obliqui Superiores*, and the two *Recti Postici*, turn  
 the Head a little backward on the first Vertebra of the Neck;  
 and they can neither act otherwise, nor separately.  
*OBLIQUUS INFERIOR SIVE MAJOR.*  
 It is situated in a contrary Direction to the *Obliquus Supe-*  
*rior*, between the first and second Vertebra of the Neck,  
 resembling that Muscle in every thing but the Size. It is fix'd  
 below to one Branch of the bifurcated Spinal Apophysis of the  
 second Vertebra, near the Insertion of the *Rectus major*;  
 whence it runs obliquely upward and outward, and is inserted  
 in the End of the transverse Apophysis of the first Vertebra  
 under the lower Insertion of the *Obliquus superior*.  
 The *Obliqui inferiores*, or *maiores*, are true Rotators of the  
 Head, by turning the first Vertebra upon the *Odontoide Apo-*  
*physis* of the second; all which alternate Motions the Head  
 follows, without being hindered in the Motions forward and  
 backward, in any Degree of Rotation. These oblique Muscles  
 cannot perform any other Motions, being only Assistants to  
 the *Splenii* and *Sterno-mastoidæi*. The *Obliqui minores* can  
 have no Share therein, they being limited to the Inflexion back-  
 ward. The Obliquity of their Direction which may have  
 deceived some Anatomists, seems only to be contrived to make  
 way for the Insertions of the *Complexi minores*. *Winfl. Anat.*  
*OBOLUS, ὀβολός.* A Weight, six of which make a Dram;  
 it is equal to about nine Grains.  
*OBRIZUM, or OBRYZUM.* Pure Gold, perfectly re-  
 fin'd and purg'd from all heterogeneous Mixture.  
*OBSIDIANA*, as *Pliny* expresses it, in *Genera Vitri nume-*  
*rantur*, "are reckon'd a Species of Glass." So called, it seems,  
 from their Resemblance to a Stone, which one *Obsidius* dis-  
 cover'd in *Ethiopia*, of a very black Colour, and sometimes  
 pellucid, of a muddy Water, and reflecting from the Walls,  
 where it is placed on a Shade instead of an Image.  
*Pliny*, also, informs us, that *Obsidianum* was a sort of Colour  
 with which Vessels were incrust'd, or glaz'd; probably a kind  
 of Smalt. Hence the Name is apply'd by *Libavius*, to Glass  
 of Antimony.

OBSTE-



## OBSTETRICATIO. Midwifry.

A Labour is said to be difficult, when the Infant is not brought into the World in the usual Time, that is, in an Hour or two; but for certain Causes is retain'd longer than ordinary, and cannot be brought away without Difficulty, and the greatest Care and Diligence. The most direct and immediate Causes of Accidents of this Kind are, first, a bad Conformation of the Body, as in deformed Women; and especially when the Bones of the Pelvis, the *Os Coccygis*, and the *Os Sacrum* in particular, are preternaturally form'd; by which means the Pelvis is frequently render'd so narrow, as not to admit the Hands. Secondly, the Age of the Patient; when for Instance, Women are either too young and tender, or too old, especially in their first Labour. Thirdly, when timorous, they are too delicate, or abound too much in Blood. Fourthly, when their Labour is too much hasten'd, before Nature concurs, and offers her Assistance; or when the Waters are either too soon discharged, or too long retained. Fifthly, when the Patients, not before accusom'd to such Circumstances, refuse to assist their genuine and legitimate Pains by their own Efforts. Or, lastly, when the Situation and Posture of the Fœtus is preternatural. The more of these Causes concur, the more difficult the Labour generally is. But when a Physician is call'd to a Woman in Labour, or at least under Pains resembling those of Labour, he ought, above all things, to inquire, whether she has gone her full Time, which is nine Months; and whether the Mouth of her Womb is as yet open or shut; for if the true and legitimate Time of Labour is not as yet arriv'd, if no Member of the Infant presents itself, if the Patient is not seized with her genuine Pains, and if the Mouth of the Womb is not as yet open, we ought not only to abstain from attempting her Relief by the Hand, but, also, from the Exhibition of such Medicines as provoke Labour. We are rather to endeavour, that the Patient be kept in a State of Rest, or be laid in a Bed. The skilful Physician ought, also, to prescribe proper internal Medicines, accommodated to the Variety of her Symptoms, and calculated for the Removal of the spurious Pains, which are often in due time succeeded by a genuine and legitimate Labour; for it often happens, that Women procure not only their own, but, also, the Death of the Fœtus, whilst either by their own Imprudence, the Instigations of unskilful Midwives and Nurses, or the Uneasiness of spurious Pains, they attempt the Expulsion of the Fœtus before the due time. But when the due Time of Gestation is elaps'd, and consequently the proper Time for Labour arriv'd, when the genuine Pains, or such as are propagated from the Loins down to the Pubes, are perceived, when the Limbs tremble in consequence of the Violence of the Pain; when the Patient is seized with perpetual Tenesmus; when the Mouth of the Womb is sufficiently dilated, the Method of discovering which is represented in *Tab. LIV. Fig. 1.* the Midwife is carefully and skilfully to perform the several Functions belonging to her Office, either in a Bed, or a particular Chair contrived for that Purpose. When notwithstanding all these Circumstances, and the due Increase of the Pains, the Labour does not succeed happily, we are to have recourse to more efficacious Methods: But before we specify these, we must observe that the Women of *France*, and several other Nations, are deliver'd in Bed, whereas those of *Germany* are deliver'd in a peculiar Chair, represented in *Tab. LIV. Fig. 14.* which Method *Heister* thinks preferable to the other, for several Reasons; especially because their Feet being on the Ground, their Back at the posterior Part of the Chair A; their Buttocks on the transverse Seat C, so excavated that the *Os Coccygis* may commodiously yield, and their Hands holding the Handles D, D, they can make far stronger Efforts, and the Midwife and Assistants have far better Access, and Opportunity of doing their respective Duties. In some Places, where these particular Chairs are not to be had, 'tis customary to fix two common Seats of an equal Height so together, that there may remain six or eight Inches between them. One Buttock of the Woman in Labour is to be placed on each of these Stools, whilst her Anus and Pudenda correspond to the Interstice between them, by which means the *Os Coccygis*, and the *Os Sacrum*, are free from Compression, and easily yield to the Passage of the Fœtus. 'Tis become customary in *Germany*, among the common People, to place the Patient on the Knee of some robust Woman, who, holding her firm in their Arms, supplies the Place of a Chair contriv'd for that Purpose.

The Postures of parturient Women are different in different Countries, and in different Parts of the same Country, but there is no general Rule to be laid down, because some Postures suit some Women, and others do better in another Situation: Besides, one Posture is more commodious than another, as the Child happens to be situated, or as the Uterus happens to be placed obliquely towards the Spina Dorſi, too much forwards, or too much inclining to the Right or Left Side.

The usual way amongst common Midwives is to place the Woman upon another's Lap, with her Feet upon two Chairs, placed one on each Side, whilst the Person that delivers her, sits before the Woman upon a low Chair.

Others, again, especially in the Country, place the Woman upon her Knees and Hands, or Elbows; or else bending forwards against a Table, or something solid, and deliver her backwards.

The best Practitioners seem to think it most commodious to deliver a Woman in, or rather upon, a Bed; lying on one Side with the Thighs and Legs bent towards the Belly; with a large hard Pillow betwixt the Thighs, to keep them asunder.

In *France* it is the Custom to deliver a Woman in a Pallet-bed; but *La Motte* finds fault with them for being too low: His Method is, to lay the Woman upon a common Bed, either across or otherwise, taking care to have it made in such a manner, that it shall lie upon a Slope from the Woman's Head downwards, and making a Depressure, or kind of Trench, under the Anus, that nothing there may hinder the Birth of the Child: Mean time he places a Cloth four-double, just under the Region of the Kidneys; divides the Knees to a Distance from each other; places two Women, one on each Side, to hold the Knees with one Hand, and to sustain the above-mentioned Cloth, when necessary; the Woman's Heels are to be placed near the Buttocks, and must rest against something solid, the Bedstead, for Instance, or something else, set there on Purpose; the Woman must hold something fixed in both her Hands to hinder her from raising herself, and retiring during the time of the Pains, or when the Child is in the Passage; or else the Woman must be kept from Motion, by another Person's Hands laid upon each Shoulder.

*La Motte* orders a Cloth to be thrown over the Woman's Knees for Decency, and to prevent Cold.

A double Cloth must, also, be placed under the Woman to receive whatever is discharged from the Uterus; and a woollen Cloth must be in Readiness to receive the Child.

*La Motte* is of Opinion, that the surest Way to succour a Woman in a long and difficult Labour, is to confine her to no constrain'd Situation, but to let her walk, sit, or lie in Bed, just as she finds it easy to her, till such times as the Waters are flow'd off, the Pains begin to be strong, and the Child advances.

It is often a great Relief to a Woman to have the lower Parts a little elevated by means of the doubled Napkin placed under the Region of the Kidneys, during the Pains.

*La Motte* tells us, that some Women will have no Pains in Bed, or lying, or even sitting, but will have them very strong as soon as they get up: This is true, as also *vice versa*.

The same Author gives an Instance of a Woman being deliver'd in the following Posture, which he seems very much to approve, when the Child is pretty far advanc'd in the Passage.

Another Woman was placed in an easy Chair, with the Back close to the Wall, and her Legs pretty much asunder; upon this Woman's Lap the parturient Woman was placed, with two more Women to support her under the Arms, and two more to sustain the Feet, and elevate the Knees, and keep them asunder.

When a Woman has not sufficient Pains, in one Posture, to bring the Child, all others must be tried.

*La Motte* does not approve of laying a Woman in her own Bed.

But it is, above all things, necessary, that Midwives or Physicians, attending Women in Labour, should be perfectly acquainted with the Mouth of the Womb, either from Anatomy, or from *Tab. XVII. Fig. 3.* at 5. or at *Fig. 2.* Letter L, in *Tab. L.* or at *Fig. 1.* Letter C, in *Tab. LIV.* It must, also, be adverted to, that the Womb, especially in pregnant Women, is, except in the Time of Labour, so close shut, that it will scarcely admit the Point of one's little Finger, till the genuine Pains approach. But when these come on, it gradually dilates itself, so as at first to admit one Finger, and afterwards several; and in this Aperture of the Uterus are perceived the Membranes including the Fœtus, resembling a Bladder distended with Water; and often some Part of the Fœtus, through these Membranes, enters the Mouth of the Uterus, or is so contiguous to it, as to be perceived by the Fingers. By these Circumstances the Delivery is known to be at Hand, and is so much the nearer, in proportion as the Mouth of the Womb is dilated. But that the Midwife or Physician who acts in that Quality, may, with Judgment, discover the State of the Mouth of the Womb, they are gently to introduce their fore and middle Fingers, or at least the middle Finger, anointed with Oil, up the Vagina of the pregnant Woman, as far as the Mouth of the Womb, (see *Tab. LIV. Fig. 1.*) in order to discover whether its Mouth is closed or open, much or little dilated; by which means they may, at the same time, discover whether the Delivery is near or not, whether the Mouth of the Womb corresponds directly to the Vagina, as in *Fig. 1.* or inclines to some Side; and consequently



sequently whether the Situation of the Uterus is direct, which is the Sign of an happy Delivery, or whether it is more or less oblique; as, also, whether the Head, the Foot, the Arm, or any other Part, attempts its Exit; from which Circumstances an easy or difficult Labour may, with the greatest Certainty, be prognosticated, as we are informed by *Deventer, Van Hoorn, and Widemannia*. In making our Searches of this Kind, we must observe, never to make any Attempts, except in the Intervals of the Pains, which are the most proper Times for discovering what we want to know.

Before I proceed to difficult and unnatural Births, it will be necessary to take notice of some things relative to a natural Labour, both for the Instruction of those who intend to be Practitioners in this way, and for the general Information of parturient Women, who are frequently greater Sufferers in the most easy Labours, by unskilful Conduct, than the Circumstances require.

When a pregnant Woman approaches near the Term of her Delivery, she is attentive to every Variation of her State and Condition. Nor can she be blamed for this Caution, since she is most deeply interested in her own Fate, and is to act the most considerable and important Part in the Labour. Upon the first Approaches of Pain, a Sense of Danger prompts her to implore the Assistance, either of a Physician, or the Midwife. These, before they make any Attempts for her Delivery, ought carefully to inquire into the Nature of her Pains, because these may be either false and spurious, or of the genuine and legitimate Kind.

False Pains are such as neither proceed from the Uterus, nor bear downwards; but they draw their Origin either from Wind or Bile lodg'd in the Intestines, as is obvious from the Rumbling of the abdominal Viscera, and the Tenesmus or Inclination to go to Stool. Any violent Commotion, a Fit of Passion, or a Coldness of the Body, succeeded by a Paroxysm of a Fever, are Circumstances capable of exciting Pains, which, however violent, are not productive of a Delivery; for which Reason they are called false or spurious Pains.

True and genuine Pains, on the contrary, beginning in the Region of the Loins, extend themselves to that of the Uterus, render the Pulse more full, frequent, and elevated. They, also, produce an unusual Redness of the Countenance, because the Blood, being, by their means, more agitated and heated, is of course more quickly and copiously conveyed to the Face. These Pains remit and resume their Force at certain Intervals; but the succeeding Pain is always more severe than that which preceded, till at last they grow so strong as to terminate in the Birth of the Child.

Women who have not before born Children, very readily mistake the Nature of these Pains; but such as have, are sufficiently capable of distinguishing the true from the false and spurious Pains; and a Woman, upon the Approach of her first Labour, is excusable in taking her Pains for a Paroxysm of the Colic.

With respect to Pains, sometimes Women feel considerable Pains in their Bellies, for some Months before Labour. In these Cases, *La Motte* says, Purges are not necessary; and recommends Clysters of Whey only, with a Pugil of green Anise, (*Anis veri*) boil'd in it.

At the Approach of Labour, a Woman feels generally, for some Hours, and frequently for some Days, Pains in the Loins and Belly, which either do not bear downwards at all, or but very little. These they usually call *Grinding Pains*, which are very troublesome and fatiguing, but, however, of great Service; for they contribute to the gradual Dilatation of the Mouth of the Womb, promote by degrees the Formation of the Waters, bring the Child to a due Situation for the Birth, lubricate the Passages by expressing from the Womb an emollient and mucilaginous Fluid, and perhaps bear no small Part in loosening the Cohesion of the Placenta with the internal Surface of the Womb, in such a manner, that its Discharge may immediately follow the Birth of the Child.

A Midwife ought to be extremely cautious of putting a Woman upon Labour too soon; for every Pain that a pregnant Woman feels in her Belly, or Loins, must not be taken for Labour, even tho' the Head of the Child may be felt; because these Pains are not true ones, unless accompany'd with a Discharge of slimy Matter from the Uterus, and unless the Waters are formed.

In case of such Pains as these, the Woman must be kept easy and quiet, and the rest must be left to Nature.

In case these Pains are very troublesome, they are to be taken off by proper Clysters, and made of emollient and carminative Ingredients. *La Motte* recommends one of half Whey, and half Barley-water, wherein Agrimony and Mullein have been boiled, with an Addition of a Spoonful of Honey, and a few Aniseeds.

A Woman may have these spurious Pains for many Days, before 'tis necessary to give her any Assistance; and 'tis extremely wrong of a Midwife, to fatigue the Woman, by putting her upon Labour, and more so, to be perpetually touching the Parts.

*La Motte* asserts, That all sorts of Pains, in any Part of the Body whatever, are to be regarded in the last Days of Gestation; because they are frequently succeeded by, or accompany, true Labour-pains: Of this he gives two Instances; in one of which, an excessive Pain was felt in the Side; in the other, the Pain was in the Thigh, and the Woman was delivered in half an Hour, and the Pain entirely ceased.

Women so ill, that they seem deprived of all their Senses, whilst in Labour, have often a Motion with their Arms, Lips, or of the lower Parts; from which the Midwife may guess at their being in Labour.

Labour-pains often cease for a little time after the Waters flow off, but soon return again; however, the Author above quoted gives an Instance of their ceasing, and never returning at all. He was called in the third Day; and, upon Examination, found the Orifice of the Womb closed, but very easy to be dilated: Upon introducing his Hand, he found a dead Child presenting the Back, which he brought away by the Feet.

Labour-pains will sometimes continue for eight or ten Days, or more, by Intervals, before they become strong enough to bring the Child into the World.

*La Motte, Obs. 374.* gives the Case of a Lady at her full Term, who was in the Evening seized with Labour-pains: The Mouth of the Womb was dilated to the Bigness of a Crown-piece, and the Membrane began to be formed; but in half an Hour's time the Pains ceased till the next Evening, when they again returned; and then the Mouth of the Womb was very much dilated, and the Membranes seemed ready to break; but the Pains decreased by little and little, and again entirely left her. The Morning following she was seized with an excessive Pain in her Leg, from the Ankle to the Knee; which the Author judged not to be a Symptom of Labour, and therefore embrocated the Part with warm Brandy, and wrapt it up in a warm Napkin; upon which the Lady went to sleep, and waked without Pain. She continued in this manner thirty-five Days perfectly easy, and then the Labour-pains returning with Violence sufficient to break the Membranes, the Child was found to present with the Feet, and one Hand, which the Author brought away by the Feet, not without much Difficulty; for the Child was extremely large, and so strong, that he was obliged to make use of both his Hands to bring the Feet, not being able to fix the Feet in one Hand, the Child withdrawing one when he seized the other. This Child presented right, when the Lady was first of all seized with Labour; but, the last time, it presented wrong.

The Signs which happen a few Days before the Delivery, are the following: Some uncommon Pains are perceived in the Loins; the Mother observes the Prominence of the superior Part of the Abdomen sunk, as it were, and depressed to the lower Region; She cannot walk with that Ease and Freedom she did before; she is seized with a preternatural Inclination to discharge her Urine frequently; and a viscid Matter descends from the Uterus, in order to moisten and lubricate the Vagina, or Passage through which the Fœtus is to come into the World.

These general Signs are, in proportion as the Labour approaches, succeeded by others; such as, an universal Trembling of the Body, but more especially of the Thighs and Legs, which are seized with Shivering. This, however, does not, like that preceeding Fevers, arise from Cold. The Mother also, sometimes vomits; a Circumstance which surprises the By-standers, who are ignorant, that 'tis highly beneficial in this Case, because 'tis a Sign, that the Infant, situated in a natural Posture, pushes with its Feet against the Bottom of the Stomach, in making Efforts to find a Passage into the World. When the viscid Matter, discharged from the Uterus, appears tinged with Blood, 'tis a Sign, that the Delivery is not far off, tho' we are obliged to wait a longer, or a shorter time before it happens.

The Operator, who, before this, must not fatigue the Mother with superfluous handling the Parts, as most Midwives generally do, must now touch her, in order to discover the State in which the Mouth of the Uterus is; and that he may be able to form a judicious Prognostic with respect to the Time of the Delivery. If he finds the Mouth of the Uterus dilated, and the Membrane thrust into it, like a large Gut full of Water; 'tis a Sign, that the Waters are forming, and thus pushed forward by the Head of the Fœtus, which is soon to follow them. Lastly, when, during a violent Shock of Pain, produced by the Efforts of the Infant, this Membrane breaks, and the Waters are discharged, we may be assured, that the Delivery is at no great Distance.



As a Physician cannot ascertain, that the Measures he orders to be taken with one Woman in Labour, will exactly suit the Case and Circumstances of another, who may be in a quite different Condition ; so he cannot, in the very Nature of the Thing, reduce his Precepts and Directions to one general Rule, the following of which might indeed prove beneficial to one, but hurtful and pernicious to others. He must therefore distinguish himself from the common Herd of Midwives, who often tread in a beaten Path, and practise always in one manner, without Distinction, and without knowing what Consequences it may produce.

The first Step to be taken by the Operator is, carefully to interrogate the Woman with respect to every Circumstance which has the least Tendency to make him acquainted with her State and Condition. He must carefully advert to every Answer she makes, and guard against discovering the least Degree of Astonishment, even tho' she should recount Circumstances which give him Reason to suspect a difficult Labour. If from the Bulk of the Abdomen he conjectures, that two Children are lodged in the Uterus, or that the Posture of the Fœtus is bad and unnatural, he must not declare his Sentiments, because he may do that in due time afterwards. Instead of discovering himself to be under the Influence of Dread or Terror, he must assume a gay Behaviour, and assure the Mother and By-standers, that the Event will be happy and successful.

He must by no means pass too decisive a Sentence with respect to the Delivery ; for I have known Women, who have been told, that they would be deliver'd at such a particular Hour, become intolerably impatient after that Hour was past. The Moments, at any rate, seem long and tedious to the Patient ; but much more so, when her Pain continues beyond the Period foretold for its End. 'Tis more prudent to specify a longer Time for this Purpose, than in all Probability it really requires, since, in this Case, one or other of these two Circumstances must happen ; either the Mother goes to the Time prefixed, or she is delivered before it : If she is not delivered, she has no Occasion to be impatient, since the Time fixed for her Relief is not yet arrived. If, on the contrary, she should be delivered before it comes, she is inclined to imagine, that the Assistance of the Operator has exempted her from some Hours of Pain, which she must otherwise have gone through.

*Mauriceau*, for a Patient in this Situation, orders a Clyster, Venesection, and Aliments of easy Digestion ; such as Jelly-broths, fresh Eggs, and a Toast and Wine with Sugar. At the same time he forbids the Use of all Wines, Ratafia, and every thing of an heating Nature : But, as, in some Cases, we ought to abstain from what he orders, and, in others, to do what he forbids, we must inquire when we are, and when we are not, to follow his Advice.

He assigns two Reasons for his prescribing a Clyster ; which are, first, in order to evacuate the gross Fæces indurated in the Rectum, and which might, by means of their Hardness, obstruct the free Passage of the Infant. The second is, that, by straining to discharge the Clyster, Efforts capable of bringing on the Delivery are excited : But he forgets a third, which is, that the Contents of the large Intestines must be evacuated, lest, being pressed upon by the Head of the Infant, they should be discharged during the Labour ; a Circumstance which not only sometimes happens, but, also, brings along with it very considerable Disadvantages.

But these Reasons cease, if the Mother has had a Stool the same Day ; for, since the Fæces are evacuated, they can neither incommode the Infant, be discharged during the Labour, nor produce Efforts necessary to a Delivery ; so that a Clyster must, in the Nature of the Thing, be superfluous and useless, in Cases where there are no Fæces in the large Intestines : Besides, *Mauriceau*, in several Passages, forbids the promoting the Labour too hastily. Now, as Clysters have a Tendency to produce that Effect, they ought not to be used, except in Cases of absolute Necessity, which cannot possibly occur in natural Labours, of which we now speak.

Tho' Venesection is sometimes of singular Advantage in particular Labours, yet its Propriety must be indicated by some Symptom ; but, in a natural Labour, no Circumstance points out its absolute Necessity. *Mauriceau*, however, warmly recommends it, affirming that we may safely empty the Veins of a Woman whose Labour is near ; because, having the Infant no longer to nourish, she has no Occasion for so large a Quantity of Blood as she had before. But this Reason is too general and unlimited, to be taken in a literal and unrestrained Sense. If the Patient is sanguine, plethoric, or has not been blooded for a considerable time before, his Advice may be followed, and Venesection may be proper enough : But if the Mother is weak, delicate, or has eaten little during her Pregnancy her Strength and Blood must be carefully preserved. Neither have we any Reason to dread either those violent Hemorrhages,

which soon prove mortal, or too copious Purgation incident to Mothers of strong and robust Constitutions, or who during their Gestation have eaten liberally. And if those Patients, for whom we judge Venesection improper, should happen to have a small Redundance of Blood in their Veins, Nature is able to rid herself of it by the subsequent Purgations.

If a Woman should happen to be seized with Pains soon after Dinner or Supper, we must give her no more Aliments ; on the contrary, it were to be wished, that her Stomach was empty, because, in consequence of that Circumstance, it would be less stimulated to vomit. Some Women, in this Situation, are so much afraid of Hunger, that they imagine they should die, if they wanted Aliments for four Hours. The Operator is reduced to a Necessity of humouring these, not in order to give them any additional Strength, as they themselves idly imagine, but in order to satisfy their inordinate and importunate Cravings : But it would be far better, if the Mother was delivered without her taking any Aliments ; I mean, in a natural Labour, which does not exceed seven or eight Hours ; but, if it should happen to be protracted longer, the Patient's Strength must be supported by proper Jellies or Jelly-broths.

Wines, spirituous Liquors, and all kinds of hot Compositions, are expressly forbid by *Mauriceau*. I must indeed agree with him, that a Woman in Labour, whose Pulse is elevated, whose Countenance is inflamed by the Violence of her Pains, or whose Throat is overheated by her Groans and Cries, must not use such Substances as have a Tendency to render her Blood hotter, and consequently augment her Symptoms. Ptisan, or simple Water, are far more proper, in order to refresh her, and lubricate her Throat.

As different Women are, during their Labours, accustomed to different Liquors, such as Hartshorn-water, Rosa Solis, Divine Waters, as they are called ; Decoctions of Sugar and Cinnamon in Wine, or Wine alone ; the Operator, if he cannot intirely banish their Use, is, at least, to lessen their Quantity as much as he possibly can.

As different Women are, also, accustomed to have themselves delivered in different Positions and Situations, some standing, others in a Chair, others on their Knees, others on a Matras before the Fire, and others in Bed, the Operator is obliged to gratify their several Humours, since, on these Occasions, their peevish Obstinacy is generally proof against the Remonstrances of Reason, and the Suggestions of good Sense.

Before the Labour comes on, the Operator must be previously furnished with whatever will be necessary ; as Cloths, Thread to tie the Navel-string, and Scissors to cut it : When all this Apparatus is at hand, he is patiently to wait the Increase of the Pains, and, during their Intervals, to entertain the By-standers with some agreeable Conversation, carefully avoiding the Mention of difficult Labours, putting a favourable Construction upon every Circumstance, and affirming that all the Symptoms prognosticate an happy Delivery.

When the Pains are augmented to such a Degree, that the Mother can neither walk, nor sit, without the greatest Uneasiness, the Delivery is to be attempted in what Posture the Surgeon thinks most commodious.

*Mauriceau* orders the Patient not to be delivered, till the Waters are discharged ; but, in my Opinion, this is delaying too long. 'Tis true, some Women have a great many Pains after the Eruption of the Waters before their Delivery ; but 'tis at the same time equally certain, that others are delivered during the same Pain which evacuates the Waters. For this Reason, I think, we ought not to delay so long, lest the Waters being discharged, and the Mother in an erect Posture, the Infant, which is soon to follow these Waters, should fall on the Floor ; a Circumstance which may be attended with fatal Consequences.

Tho' the Operator ought never to touch a Woman more frequently than is absolutely necessary for making a Prognostic, and forming a probable Judgment with respect to the Time of the Delivery ; yet, as some Women think themselves ill used, when they are not often touched, he is often obliged to comply with this absurd Piece of Prædilection, rather to gratify the Imagination of the Mother, than afford her any Relief.

As some Women cry as violently on the Approach of their first Pains, as they might be supposed to do in the Height of their last, the Operator must suggest to them, that they render their State worse by that means ; and that the giving a proper Check to their Cries, till they had real Occasion for them, would be a Circumstance of great Advantage.

Every time the Operator thinks it necessary to touch the Patient, he must convey a small Portion of Butter into the Vagina, in order to anoint the Mouth of the Uterus ; that, by this means, it may dilate itself with the greater Ease and Expedition ; for the Length or Shortness of the Labours bear a Proportion to the Time it requires to open and dilate itself sufficiently.



Tho' Oils and Butter may facilitate the Dilatation of the Mouth of the Uterus, yet the Head of the Fœtus contributes more powerfully to the Production of this Effect, since, at every Pain, it pushes against it, and at last, so dilates it as to find a free Passage for itself: The stronger the Infant is, the more powerful Efforts it makes to come into the World; and this is the Reason why, as some imagine, Women pregnant with Male Children are generally more expeditiously delivered, than those whose Off-spring proves of the other Sex.

Women who have had frequent Opportunities of attending Labours, are so firmly persuaded of this, that, when they see a Labour protracted, they never fail to pronounce, that the Child will be a Girl. In a word, 'tis established as a kind of general Rule, that Boys force their Way into the World much sooner than Girls, tho' in some Cases it happens otherwise: When, for Instance, the Boy, having a large Head, and broad Shoulders, cannot make its Way through the Mouth of the Womb, which is not as yet sufficiently dilated. In this Case we must wait, till, by the redoubled Efforts of the Fœtus, it is opened sufficiently, and yields a free Passage to the struggling Infant.

Every Effort of the Infant produces a Pain, which bears a direct Proportion to the Strength or Faintness of that Effort; for which Reason severe and violent Pains are often wished for, because they contribute more powerfully to the Delivery, than such as are faint and languid.

Some Women, at every Pain, endeavour to bear downwards, with an Intention to forward the Delivery; but as these Attempts fatigue them, and impair their Strength to no manner of Purpose, the Operator is to advise them to reserve their Efforts, till the last Pains come on, when they may be employ'd to more Advantage.

As 'tis the Mouth of the Womb which retards the Delivery, the principal Intention of the Surgeon ought to be its Dilatation, by anointing it now-and-then, and turning one of his Fingers in it, taking care, at the same time, not to impair it in any manner.

In proportion as the Mouth of the Uterus is dilated, 'tis filled with a Membrane distended with those Waters in which the Infant swims, and which are thus driven forwards by the Head of the Fœtus. We must not, like some Midwives, break this Membrane with our Nails, in order to evacuate the Waters, which, among other Uses, are destined for the Lubrication of the Passage; for, if these should be discharged too soon, the Delivery would of course be rendered more difficult, since the Parts must by that means be drier: We must, therefore, wait the spontaneous Evacuation of the Waters, by the Efforts of the Infant, who, generally, very soon follows them.

When the Waters are thus evacuated, the Operator perceives the Head of the Infant advancing, and bearing directly on the Mouth of the Womb, where it, on some Occasions, remains for a short time, in consequence of the Resistance with which it meets. Sometimes the Head of a Fœtus, whose Sutures are not as yet formed, assumes a more oblong Figure in the Mouth of the Womb, in order to facilitate the Delivery. At last, the Infant, by its reiterated Efforts, which are now more violent, because it has now more Liberty to extend itself, so dilates the Mouth of the Uterus, as to enter the Vagina.

Tho' this be a Circumstance of great Importance, yet the Delivery is not, by its means, absolutely accomplished, since there is sometimes a considerable Resistance made by the external Orifice, the Caruncles, the Nymphæ, and Lips of which, with Difficulty, yield to the Passage of the Fœtus. The Head of the Infant, in this Case, presents itself, and is seen; but cannot be disengaged without the Assistance of the Operator, who, with both Hands passed between the Head of the Fœtus, and the Lips of the Pudenda, is to dilate the latter; then, conveying his Fingers below the Jaws of the Infant, he is to extract it.

But the Extraction of the Head is not enough; the Shoulders, which are sometimes with great Difficulty disengaged, must necessarily follow. The Operator must not for this Purpose draw the Head with too great Violence, since by that means, he might separate it from the Body; he must, therefore, draw it gently to the Right, in order to disengage one Shoulder; and then to the Left, to free the other. If these Measures should not succeed, he must pass two of his Fingers along the Neck of the Infant, to one of the Arm-pits, and disengage one of the Shoulders, and then the other, in the same manner. Thus, when the Shoulders are brought out, the rest of the Body will easily follow.

The Operator must neither draw the Infant too quickly, nor extract it totally, till he has observ'd, whether the Navel-string is twisted about its Neck, or any other Part of its Body; in which Case he might, by Precipitation and Rashness, either break the Navel-string, or draw down the Secundines, which,

not being as yet sufficiently disengaged, might bring along with them the Bottom of the Uterus, to which they adhere.

When the Infant is brought alive into the World, it must be laid upon its Side, both that it may breathe more freely, and have its Face kept out of the Waters, &c. discharged during the Delivery.

The Birth and Life of the Infant may be known from its Cries as soon as it is born. From the Strength or Faintness of these, some Women pretend to decide, whether the Fœtus is a Boy, or a Girl; but this is an highly fallacious Circumstance, since Girls are frequently capable of crying as loud as Boys.

After the Child is born, two Steps remain to be taken, which are to tie the Navel-string, and bring away the Secundines, or After-birth. Some order the Navel string to be tied immediately after the Delivery, whilst others maintain, that the Secundines ought to be brought away first. The Abettors of these two Opinions advance peculiar Reasons for their respective Practices. But, in my Opinion, before doing either the one, or the other, we ought to examine, whether there is not another Child in the Womb; and, if there should, it is to be brought into the World before any Attempts are made to bring away the Secundines. That another still remains in the Uterus, may be known, if, after the Birth of the one, the Abdomen continues large, or the Mother is seized with Pains; or, if, upon the Touch, the Operator perceives a Membrane distended with Water, presenting itself to the Mouth of the Uterus. But when there is no Probability, that there is more than one, we are with all Expedition to attempt the bringing away of the Secundines.

Some Authors would have this done as soon as the Infant is born; and this was the Opinion and Practice of *Mauriceau*, who apprehends, that, during the Time employ'd in tying the Navel-string, the Mouth of the Womb is contracted, and by that means, the Extraction of the Secundines render'd more difficult; whereas, when 'tis taken away immediately after the Fœtus, the Uterus has not Time to contract itself; in consequence of which Circumstance, it may be more easily and expeditiously brought away afterwards.

Those, on the other hand, who order the Navel-string to be tied first, among whom *Clement* is one, think, that 'tis so much better, the sooner the Infant is taken from its Mother, and put into the Hands of the Assistants, in order to be cleansed, and have every other thing done, which its tender and helpless State requires.

They endeavour to give an additional Sanction to this Piece of Practice, by alleging, that the longer the Tying of the Navel-string is defer'd, the more Blood is convey'd from the Fœtus to the Placenta by means of the Umbilical Arteries; that by tying the Navel-string the Course of this Blood is obstructed, so that it remains with the Fœtus; and that allowing the Infant to cry near its Mother, is a Circumstance which might move her Compassion too strongly, and by that means retard the Elimination of the Secundines.

As these celebrated Authors furnish us with pretty plausible and specious Reasons, to support and authorize their different Practices, we shall, without condemning either, endeavour to keep a due Medium, and bring them as near to an Accommodation as we possibly can. When, therefore, the Infant is brought into the World, and laid upon its Side, the Operator is gently to pass his Hand along the Navel-string; and, if he does not find the Secundines adhering to the Womb, he is to attempt their Extraction before the Navel-string is tied. But if, in consequence of their strong Adhesion, he should not be able to bring them speedily away, he is to tie the Navel-string, cut it, and deliver the Infant to the Assistants; after which, he is to make the most proper and skillful Attempts he possibly can to bring away the Secundines.

When the Infant is disengaged from the Navel-string, which now hangs out of the Vagina, it is, in bringing away the After-birth, of great Service to the Operator, who must twist it about two or three Fingers of his Left Hand; then, passing his Right Hand up the Vagina, he must, with his Thumb and fore Finger, hold the Navel-string as near the Secundines as he possibly can; and, if, on drawing the Navel-string gently, he perceives the After-birth advancing gradually, there is some Hope, that he may soon bring it away. If, on the contrary, he perceives that it does not in the least yield to his Attempts, 'tis a Sign, that it as yet adheres too strongly to the Uterus. In this Case he must draw the Navel-string sometimes to the Right, and sometimes to the Left, in order gradually to disengage the Secundines. But this must be done gently, and without the least Degree of Violence.

The Operator must of Necessity implore the Aid, not only of the Nurse, who, after applying one of her Hands to the Region of the Uterus, is gently to press it, by passing her Hand several times from the Navel to the Os Pubis, but, also, of the Mother, who is to blow into one of her Hands shut, as if she



she was blowing into a Bottle; to retain her Breath; that the Breast being full of Air, the Diaphragm, and, consequently the Bottom of the Uterus, may by that means be push'd downwards, to make the same Efforts as if she was discharging her Excrements, and to put her Finger in her Throat, in order to excite a Vomiting. As all these seemingly trifling Circumstances are often productive of happy Effects, they are by no means to be neglected.

If, notwithstanding all these Measures, the After-birth cannot be brought away, the Operator must not lose his Patience, since 'tis sometimes half an Hour, and sometimes several Hours, before it is discharged. In those Mothers whose Blood is gross and thick, who have eaten liberally, and had but little Exercise, the After-birth is with most Difficulty brought away, because it adheres strongly to the Womb.

If through Inadvertence, or a Want of due Patience, the Navel-string should be too strongly pull'd, three Misfortunes might possibly ensue; for, first, it might be broken, a Circumstance, which would render the Extraction of the After-birth very difficult. Secondly, by separating the After-birth with too much Haste and Precipitation from the Uterus, an Hæmorrhage might be produced, in consequence of a Rupture of the Vessels of the Womb. Thirdly, if the After-birth, which adheres to the Uterus, was pull'd too forcibly, it might bring along with it the Bottom of the Womb, a Falling down of which often occasions the Death of the Mother.

A skilful Operator avoids all these Mistakes, and gains his Point by Dexterity and Patience. When the Mother is completely delivered, the After-birth must be laid in some Vessel, in order to be examined by the By-standers, lest, if any Misfortune should afterwards befall the Mother, it should be attributed to a Portion of the After-birth remaining in the Uterus.

As soon as the Woman is delivered, the Pudenda are to be covered with a moderately warm Cloth consisting of several Folds: She is to be ordered to bring her Thighs together, and stretch out her Legs: She is, also, to be kept very warm in Bed, and left for some time in a State of Repose, which is a grateful Alternative for her former Pain and Fatigue.

If the Operator suspects, that the Parts have been too much distended, or injured, by the Largeness of the Infant, especially in a Woman's first Labour, he must apply to them a Cataplasm made with Eggs, and Oil of Nuts, mix'd together, and spread upon Lint, over which a large warm Cloth is to be apply'd for its more commodious Retention.

A great many Women use to take Syrup of Maiden-hair, Oil of sweet Almonds, and Orange-juice, of which they make a Draught, to be taken soon after their Delivery, thinking by this means to alleviate their After-pains, and facilitate the Discharge of the Lochia: Others take Jelly-broths prepared of a Piece of Beef, Mutton, a Partridge, and Leeks. I should prefer these Jelly-broths to the former Draught, since the Patient requires something to support and strengthen, rather than to disgust and pall her Appetite.

Some Authors order, that the Mother should not be allow'd to sleep for a considerable time after her Delivery; but I believe this Advice is supported on no better Foundation, than that which directs a Person not to sleep after Venesection.

The Difficulty started above by the French Writers, relative to tying the Navel-string, and bringing away the After-birth, may be very easily obviated; for a third Person, the Nurse, for Example, may tie the Navel-string, and separate the Child from the Mother, whilst the Operator brings away the After-birth. But as this is sometimes attended with great Difficulty, and as Authors do not all agree together in the manner of doing it, the following Directions may possibly be of some Use to the Practitioner.

The *Secundines* are those Parts, which, after the Birth of the Child, are discharged, as it were, by a second Birth: These consist of the Navel-string, the Membranes, or the Chorion and Amnion, by which the Fœtus was surrounded in the Womb, and, lastly, the Placenta; these are what we call the *After-birth*. When the Placenta is excluded, the others generally accompany it, tho' sometimes, after its Exclusion, a Part of the Membranes may continue adhering to the Uterus, and, by Putrefaction, produce very terrible Symptoms. The *Secundines*, immediately after the Birth of the Child, generally come away spontaneously, or by the Assistance of proper Efforts made by the Mother. 'Tis, however, in some Cases, highly expedient to disengage and extract them with the greatest Caution and Circumspection: When, for Instance, they do not follow the Child, either on account of their uncommon Largeness, or their strong Adhesion to the Uterus; or when, in consequence of the Breaking of the Navel string, the *Placenta*, with its annex'd Membranes, remains in the Uterus; for, unless these be extracted with all possible Expedition, 'tis to be dreaded, lest the Mouth of the Uterus should close, and render their Extraction either highly difficult, or absolutely impossible; in which Case they putrefy in the Womb, excite violent Pains,

malignant Fevers, copious Hæmorrhages, and, as a great many Authors inform us, Death itself. Some Physicians, I know, maintain, that the Extraction of the *Secundines* by the Hand is superfluous, since they either come away spontaneously soon after the Fœtus, or, when putrefied, are expelled a few Days, or, sometimes, a few Weeks after. But I think the Advice of those more safe and rational, who, unless the *Secundines* naturally follow the Fœtus, with *Hippocrates*, *Celsus*, and many of the Moderns, order them to be forthwith extracted by the Hand. I am induced to declare in favour of this Practice, not only by Observations of others, but, also, by Cases which have occur'd to myself, where the Mothers, in consequence of the *Secundines* being left in the Womb, have been subjected to violent Pains, malignant Fevers, copious Hæmorrhages, and even to Death itself. Unless, therefore, this Practice is contra-indicated by some Circumstance of uncommon Importance, the Mother is not to be suffer'd to quit her Posture, till all the *Secundines* are extracted, because any Part of them, left behind, generally produces the most terrible Consequences. This must be done with the greatest Expedition, and immediately after the Birth of the Child, lest the Mouth of the Womb closing should prevent the ready Introduction of the Hand, and, by that means, render the Work very difficult, if not entirely impracticable. When, therefore, the *Secundines* do not immediately follow the Child, the Right Hand is forthwith to be passed along the Navel-string into the Womb, where the Placenta is to be laid hold of, and extracted. But, if it should happen to adhere pretty strongly to the Womb, the Navel-string is to be cut, and tied near the Navel of the Fœtus. Then the Part of the Navel-string adhering to the Placenta is to be twisted about the Fingers of the Left Hand, whilst the Right is to be passed along it, and applied to the Placenta. See *Tab. LIV. Fig. 13.* which must be gently pulled by the Navel-string, till, being separated from the Uterus, it may be easily extracted. If by these Measures the End cannot be obtained, the Abdomen of the Mother is to be gently rubbed by the Hand of an Assistant, and she is to be ordered, by coughing, and repeated Efforts, as in the Birth of the Fœtus, to attempt the Expulsion of the After-birth; by which means they are often happily disengaged from the Womb, and excluded. But, in drawing the Navel-string and Placenta, great Care and Moderation are necessary, lest, by doing it with too much Force, the Womb, as it sometimes happens by the Imprudence of Midwives, should be drawn along with it, and the Life of the Mother exposed to the most imminent Danger. When the Placenta is extracted, the Hand is again to be passed into the Womb, in order to remove Concretions of Blood, or the Remains of the *Secundines*, if there should be any, because, by leaving these, violent Pains, and dangerous Hæmorrhages, are excited. The Hand, also, is to be kept shut for some time in the Uterus, till it gradually contracts itself in an equable manner about it, since by these Precautions various Misfortunes, which would otherwise befall the Patient, are often prevented.

*These are the Rules laid down by late practical Authors; but I must remark, that the second Introduction of the Hand is utterly superfluous, provided the After-birth is brought away entire by the first: Nor is it in the least necessary to keep the Hand shut in the Womb, till it contracts.*

When by these means the Adhesion of the Placenta to the Womb cannot be surmounted, 'tis necessary, by gently passing the Fingers between them, to disengage the one from the other; which, as Experience teaches, may be done with no great Difficulty, especially if any Part of it is already freed from the Womb, whilst the Thumb is fixed at the Root of the Navel-string, or Centre of the Placenta, and the other Fingers passed between the disengaged Part of it and the Womb; by which means it may be gradually more and more disengaged, till at last a total Separation renders its Extraction easy. But, when all the Parts of the Placenta adhere firmly to the Womb, the Case is far more difficult: We are, however, to endeavour by the Fingers, especially the fore and middle Fingers, first gradually to disengage some Part of its Edges from the Womb; and, when the Whole is disengaged, to extract it in the manner already directed. But if, in consequence of a strong Adhesion, this cannot be done, the Placenta is to be perforated in the Middle, and gradually disengaged by that means. But all these Measures must be taken with the greatest Caution, lest, by the Nails of the Fingers, or the Violence of the Pulling, the Womb should be injured, or forcibly extracted along with the *Secundines*; for we know from Experience, that Cases sometimes occur, in which the Extraction cannot be performed without the Application of considerable Strength; and *Paré* mentions a Case, in which the *Secundines* could not possibly be extracted by any Art. Misfortunes of this Kind, especially when the Placenta is forcibly torn from the Uterus, generally prove mortal to the Mother. Unless, therefore, they can, without great Force and Violence, be disengaged; it seems,

more



more expedient, for some time, to abstain from manual Operation, and rather to seek Relief from forcing Medicines, the most powerful of which are, the Powder of the dried Liver and Bile of an Eel, or Myrrh and Borax reduced to a Powder, and frequently exhibited to the Patient in Penny-royal, or Cinnamon-water, or aloetic Pills, or some other Medicines of a like Nature; to which we may add a strong Clyster, or Suppository, to stimulate the Anus, or a sternutatory Powder, which was long ago recommended by *Hippocrates*. When these Steps are taken, it is more prudent to commit the rest of the Work to Nature, than forcibly to tear away the Placenta, perhaps, strongly adhering to the Womb; by which means the Uterus may be violently dilacerated, and the Mother exposed to terrible Calamities, and, perhaps, to Death, as many Authors have observed. The like Care and Caution are to be observed, when, by the Ignorance of the Midwife, the Mouth of the Womb is suffered to close so far, that the Hand cannot have Access to extract the Secundines.

When the Navel-string, either by the Rashness of the Midwife, its own Weakness, or its Putrefaction, especially when the Fœtus has remain'd dead for a considerable time in the Womb, happens to be broken, especially near the Placenta, so that it can no longer be a Guide and Direction to the After-birth, it is, especially when strongly adhering, with great Difficulty found, because by the Touch alone it cannot easily be distinguished from the Womb, which by an unskilful Hand may be laid hold of, and injured, instead of the Placenta. The After-birth is, therefore, by the Touch to be carefully distinguished from the Womb. When some Part of the Navel-string as yet remains of the Placenta, the former is to be laid hold of, and the latter gently extracted by it; but, when it is wholly broken off, the Placenta is to be distinguish'd from the Womb by its vascular and uneven Substance, in which are perceived Blood-vessels, like those presented in *Tab. LIV. Fig. 13*. When the Placenta is thus found, it is, by moving the Hand sometimes one Way, and sometimes another, to be gently separated from the Womb, and extracted; which may be more commodiously done, if the Operator, with his other Hand, gently compresses that Side of the Abdomen which is hard, prominent, and contains the Placenta; or he may order this to be done by an Assistant. We must here observe, that tho' *Deventer*, and some others, affirm, that the Placenta is always lodged in the Bottom of the Womb; yet *de Graaf*, *Slevoghtius*, *Hoorn*, *Brunner*, and *Heister*, have found the contrary: For which Reason, if it is not found in the Bottom, it is to be sought for in the Sides, the posterior or anterior Parts, and, when found, disengaged and extracted. When 'tis taken away, we are carefully to examine, whether 'tis entire, or whether any Part of it is left: If this latter Circumstance should happen, the Part left is to be sought for, and carefully extracted, together with the concremented Blood.

*Ruyfch*, a celebrated Physician at *Amsterdam*, in a small Book wrote for that Purpose, maintain'd, that an artificial Separation of the Placenta, when it did not follow the Hand, drawing gently, was by no means to be attempted, but left to the Efforts of Nature, and the Assistance of a certain orbicular Muscle in the Bottom of the Uterus, destined for this Purpose. This Author affirms, that by a long Course of Experience he had been taught, that unlucky Consequences were always produced by introducing the Hand into the Womb, in order to separate the Placenta from it; and that many Women, on whom this Operation had been perform'd, were destroy'd by it; whereas almost all those Women, in whom the Secundines adhering firmly, had been left to the Efforts of Nature, happily recovered, and had the Placenta, together with its Appendages, expelled. He, therefore, advises the Practitioner never to make a rash Attempt of this Kind. But as I myself, says *Heister*, and other skilful Operators and Midwives, have known many Patients destroy'd by leaving the Secundines in the Uterus, so I am, says he, persuaded, that *Ruyfch* does not, as some imagine, forbid every Extraction of the Secundines, but only a forcible and violent one, as is obvious from his *Abversf. Anatom. Dec. 2*. Those Secundines, therefore, which require the Assistance of Art to disengage and extract them, are not to be left in the Uterus: But when they cannot be extracted without uncommon Violence, which is rarely the Case, or when the Mother is seized with Convulsions, they are to be left to Nature, and the Patient is to be treated with proper Medicines; for the Operator, when he can do no Service, is carefully to avoid doing any Injury; and in Process of Time the Secundines may be spontaneously and happily expell'd, Instances of which have occurred to a great many Practitioners. *Leporinus* wrote a Treatise in *High Dutch* on purpose to contradict the above-quoted Doctrine of *Ruyfch*: *Cobausen*, also, opposes the Sentiments of *Ruyfch*, with respect to deferring the Extraction of the Secundines.

If, after the Birth of one Child, there should remain another,

or more, in the Womb, the Secundines of the first are by no means to be extracted, till all the Infants are brought into the World; for I and others, says *Heister*, have been experimentally taught, that by a Neglect of this Caution violent Hæmorrhages have been brought on, not only mortal to the remaining Infants, but, to the Mother.

When from the Neglect of a seasonable Extraction the Secundines are become putrefied, we must take proper Measures to prevent the Corruption of the Womb at the same time. If, therefore, the Secundines cannot be extracted with the Hand, the Womb is to be preserved from Putrefaction, by frequently injecting every Day, by means of such a Syringe, as those represented in *Tab. XXVII. Fig. 12. 13.* and some vulnerary Decoction, such as that, for Instance, which is prepared of Agrimony, Germander, or Wormwood, with the Addition of a certain Quantity of the Honey of Roses, and Elixir Proprietatis; acrid Clysters must, also, be injected; and these Measures must be persisted in, till no corrupted and heterogeneous Matter is perceived to remain in the Womb. Such Medicines must at the same time be used, as have a Tendency to prevent Putrefaction, and expel the Secundines.

When the Placenta, in consequence of a spasmodic Constriction of the Uterus, is retained, as it were, in a kind of Bag; Instances of which are recorded by some modern Authors; this Case is found very difficult, especially to Practitioners ignorant of this Circumstance, who may possibly conclude, that the Secundines are entirely wanting. But such Operators as are acquainted with Cases of this Nature, take the Navel-string for their Guide; pass their Hand along it; and when they have reached the Mouth of this Bag, which shuts like the Mouth of the Womb immediately before the Birth, they introduce first one or two Fingers, and then the others, formed in the Figure of a Cone, into the Mouth of it, which, by expanding their Fingers, they dilate, till the whole Hand can have Access; and then laying hold of the Placenta, they extract it with due Care and Circumspection. The Reader who desires a Variety of Observations, with respect to the Retention of the Secundines, may consult *Mauriceau*, *La Motte*, and *Cobausen*. *Heister. Chirurg.*

When 'tis not possible to introduce the Hand into the Womb, in order to bring away the Placenta, by reason of the ill Conformation of the Bones, which form the Pelvis, *La Motte* advises to draw gently at the Umbilical Cord, and at the same time to make the Woman bear down strongly, to shut her Hand, and blow in it, and to put her Finger down her Throat, and make herself reach.

The same Author affirms, that the Mouth of the Womb never obstructs the Introduction of an Hand, provided the Bones of the Pelvis will admit of it.

He, also, gives an Instance where the Hand could not be introduced, because the Bones which form the Pelvis, lay too near each other; and the Umbilical Cord breaking, he was obliged to leave the Expulsion thereof to Nature; and it came away three Days after, and the Woman did well.

This Author seems to have a very bad Opinion of forcing Medicines, when the Placenta stays behind, or a dead Child; and advises to trust to Nature.

After the Placenta has remain'd a Day, or longer, in the Womb, it may frequently be separated and brought away by introducing four Fingers only. *La Motte*.

*La Motte* affirms, contrary to the common Opinion, that the longer the Placenta has remain'd in the Womb, the more easily is the Mouth of the Womb dilated, the Parts being relaxed by the continual Humidity of what is discharged.

When a redish Serosity, inclining to black, is discharged from the Womb, accompanied with violent After-pains, 'tis a certain Sign, that a Portion of the Placenta, or Membranes, remain in the Womb, and then a Finger, or two, or more must be introduced, as it seems necessary, and the remaining Parts must be brought away.

*La Motte* once met with a Placenta, that was not one third so thick as usual, but membranous like an empty Bladder, and attached to all the internal Circumference of the Womb, as others are to the Bottom.

#### MISCELLANEOUS OBSERVATIONS.

When the Uneasiness about the Loins, and the other Circumstances mention'd above, change into true Labour-pains, they strongly on the lower Part of the Belly, and terminate at the Uterus and Vagina; mean time the Pains grow stronger, and all the other Accidents above-mention'd increase, as the Head of the Child sinks lower into the Pelvis, and advances in the Passage; and then the Woman perceives frequent Motions for a Stool, and to make Water, without being able to do either.

Whilst the Woman is in Labour, she must, from time to time, be admonish'd to draw in her Breath leisurely, and not on a sudden, for fear of the Child's receding when she inspires.



If the Woman is weary of a constrain'd Posture, she may, betwixt the Pains, be at Liberty to ease herself, by laying her Legs strait, or somewhat altering her Posture.

Nobody must be suffered to whisper in the Room, on any account whatever.

*La Motte* gives several Instances of Delivery being retarded by Accidents seemingly inconsiderable: As, by somebody whispering in the Room, which, giving the Woman Apprehensions of great Danger, has thrown off the Pains for many Hours. He, also, gives an History of a Lady, whose Pains ceased, upon some Apprehensions she had, lest any thing should be indecently exposed to his View, whilst he was laying her. And, he tells us of another, whose Pains entirely ceas'd, upon a Person's being in the Room, whom she did not care to have there; and which did not return, till she left the Room.

Nothing retards the Birth of a Child more, than violent Screaming, during the Pain; and, besides, it causes an Hoarseness, great Heat of the Lungs, and Pain in the Head. The Woman must, therefore, keep her Mouth shut, and force downwards, as much as she can.

In a Labour, it is seldom of any Service, to be frequently touching the Parts, and endeavouring to dilate the Mouth of the Womb, by rounding the Child's Head, with the Fingers. On the contrary, it may, and often does, do Mischief, by inflaming the Parts, and making them swell, especially in a long Labour. *La Motte*.

The last quoted Author will not allow, that the first Labour is more difficult than any of the rest.

He, also, says, that the Potion so much boasted of by *Mauriceau* for promoting Delivery, made of an Infusion of Sena, and the Juice of a *Seville* Orange, is so far from doing good, that it does a great deal of Harm.

He recommends Broth, as the very best thing that can be given to a Woman in Labour, provided she can drink it without vomiting it up again. The best thing, next to this, he says, is a Toast and Wine.

He gives an Instance of a Woman in Labour, whose Child was well situated, and far advanced in the Passage; but her Pains were slow and weak. The Midwife, through Haste, had imprudently broke the Membranes. He gave her some Nourishment, and put her to Bed, where she lay from Ten at Night, till Five in the Morning; and then, her Pains augmenting with Violence, she was soon delivered.

He gives several Instances of the Waters flowing off several Weeks, and even Months, before Delivery; notwithstanding which the Woman has gone out her Time, and been delivered of a living Child. Hence he takes Occasion to caution against delivering a Woman too soon, before Nature declares the Labour, and is ready for the Expulsion of the Child.

Tho' in the Beginning of a Labour all Circumstances seem favourable, and to promise a speedy and safe Delivery, yet it is not always certain, that the End will be answerable to so happy a Beginning, many Circumstances intervening, which may cause a long and difficult Labour, and which cannot at first be foreseen.

*La Motte* says, that at certain Seasons a great Number of Women will die after being well delivered, and without any Accident ensuing, tho' of a good Constitution, and that without any apparent Cause; and this he attributes to the epidemical Influence of the Air.

This Author is very much against Swathing a Woman during her Lying-in; for, he says, if it is done never so little too tight, it may cause a Suppression of the Lochia, insupportable Pains, Restlessness, Want of Sleep, Nauseas, Cough, Belchings, Vapours, and Oppression, which soon go off after the Bandage is relax'd, or taken away.

The Moment the Head of the Child is born, the Midwife should apply both Hands flat, one on each Side upon the Ears, and take the Advantage of the Pain that brings it so far, to bring the rest into the World. *La Motte*.

*La Motte* tells us, that he was never in any Pain about the Length of a Labour, provided the Membranes were not broke, nor the Waters run off; and says, he scarcely ever broke them, unless he was obliged to do it by some dangerous Accident happening in the Beginning, or unless there were some strong Reasons to apprehend it. And he advises all Midwives to follow his Advice, and wait with Patience, till the Membranes break, by the Force of the Pains.

When the Waters run off at the first Pains, and leave the Parts dry, it causes the Woman a great deal of Trouble, especially if the Pains happen to be slight, and so distant, that they serve more to weaken the Woman, than to promote the Birth.

In such a difficult Case, *La Motte* advises Patience, and by no means to fatigue the Woman, but to give her now-and-then some Nourishment easy of Digestion, as Broths, or a Toast and Wine, that, by keeping up her Strength and Spirits, she may be enabled to wait for, and support Pains, sufficient to bring

the Child into the World; and, when such come on, the Defect of the Waters is to be supplied by Unctions. If the Waters continue dribbling, 'tis a certain Sign of a tedious Labour.

A Woman's Pains are never strong, so long as the Waters continue dribbling; but always grow stronger, when that stops; and then the Labour generally comes forwards. *Giffard*.

The Method of letting off the Waters, when the Membranes are too strong to be broke by Pains, is to perforate them with a pointed Probe, introduced carefully along the Hand, or betwixt the Fingers.

*La Motte* is of Opinion, that the Waters should seldom or never be let off, by breaking the Membranes, unless when the Child is born coiled (as 'tis called); and then, if the Membranes are not broke, the Child will be suffocated. When the Membranes precede the Head of the Child, in the manner above-mentioned, they make an Appearance, as if a Bladder, with a little Water in it, hung out of the Vagina.

It often happens, that, immediately after the Waters are run off, the Pains cease for some time; which is an Happiness to the Midwife, when the Child presents wrong, or the Hand is to be introduced into the Uterus upon any Occasion; because, during a Pain, 'tis neither proper nor convenient to do it.

When black and thick Waters are discharged from the Uterus, 'tis caused by the Meconium diluted in a Portion of the Waters; and is a certain Sign, that the Child presents in some unnatural and constrained Posture. *La Motte*.

Sometimes the Waters will be discharged in great Quantities, in the eighth, seventh, sixth, and even fifth Months of Pregnancy; of which *La Motte* gives many Instances, and takes Occasion from hence to caution against attempting the Delivery too soon, before Nature declares itself ready; for, notwithstanding this Discharge of Waters, a Woman may go out her full Time.

*La Motte*, *Obs.* 334. gives the History of a Case, where a great Quantity of Waters were discharged suddenly from the Womb, without any Pain, about the End of the seventh Month, the Woman being extremely big. Upon touching, he found the Os Internum dilated enough to admit of the Introduction of one Finger with Ease; and found the Child in its Membranes entire, and no Deficiency of Waters. He advised a little Rest, and the Woman in a Day's time was very well, and about her Business, and went out her full Time. This was a true Hydrops Uteri. Hence the Author takes Occasion to caution against delivering a Woman too soon, without Necessity.

He farther remarks, that, when there are great Quantities of Waters, the Children, tho' moderately large, are born either very weak, or dead; that the Umbilical Cord is very large but weak, and subject to break or separate from the Placenta at its Root. The Placenta, also, is very large, and easy to separate from the Uterus.

If the Umbilical Cord is tied too near the Child's Belly, an Inflammation may ensue; if too far off, an Omphacele. If the Ligature is too slack, the Blood may escape through it; if too tight, it may cut through the Navel-string, and cause a fatal Hæmorrhage.

If, by any Accident, the Umbilical Cord is broke off pretty near the Belly, so as not to admit of a Ligature, *La Motte* advises to lay a little Button, or Pledgit, of Lint upon it, upon that a Plaister of Diapalma, then a Compress, and proper Bandage to retain it, till the Place is cicatrized, which sometimes does not happen in seven or eight Months.

The Umbilical Cord should be tied about two Inches from the true Navel.

#### OF THE TOUCH.

With respect to the Touch, *La Motte* is of Opinion, that it is in vain to touch a Woman in the extreme Violence of her Pain, because at that time the Waters are pushed downwards with so great Violence, and such Quantities, that it is impossible to know any thing certain with regard to the Situation of the Child: We are, therefore, to wait till the Pain is entirely over, or at least, considerably abated.

*Deventer* is of Opinion, that the Woman should be touched before the Pain begins; for then the Membranes, which contain the Waters, are lax, and therefore the Situation of the Child may be easily discovered; but then the Hand is not immediately to be withdrawn, but to be kept in the Vagina during the whole Pain, and even after it is over; for, during the Violence of the Pain, we may perceive, whether the Child keeps constantly presenting towards the Orifice, in what Form the Waters are disposed, whether long and slender, or flat and broad, whether the Pains are violent, or less sharp; and, when the Pains are over, we may easily perceive, whether the Pains have profited, or not, that is, whether they have made the Child sink lower. But, during the Touch, Care is to be taken, lest the Membranes, which contain the Waters, should be broke by too rough handling, especially when they are much distended by the Vehemence of the Pains.



A modern Author lays it down as a Rule, that the Situation of the Child is to be examined into during the Violence of the Pains. If he means before the Membranes are broke, the above-mention'd Writers seem to have more Reason on their Side.

The Uses of the Touch are many; for by this are known, 1. Whether a Woman is with Child or not; for some affirm, that, in the first two Months after Impregnation, the Womb is closely shut, and hence appears in the Vagina to the Touch more acuminated, hard, and more solid; but this Hardness does not appear like that of a Scirrhus, from which it is easily distinguished. *Mauriceau* compares the Mouth of an impregnated Womb to the Mouth of a Puppy just whelped, and says, that it is exactly shut, and a little longer than before.

*Deventer* is of Opinion, that it requires a great deal of Practice to judge of Impregnation by the Touch; and even then a Man may be mistaken.

However, as the Time of Gestation proceeds, the Orifice of the Womb grows shorter, more flat, and thin; and it is observable, that, in Women who have had frequent easy Labours, the Mouth of the Womb is so flat, soft, and attenuated, that often in the sixth, or seventh Month it opens, and the Child may be perceived to move within the Membranes.

The Mouth of the Womb, as the Woman advances in her Pregnancy, through the Extension of the Womb, diminishes so in all its Proportions, that, when the Woman comes near her Reckoning, it is perfectly flat, and almost equal with the Globe of the Womb; so that it becomes like a small Circle, a little thick at its Entry, where the Garland is made at the Time of Labour. *Mauriceau*.

*Dionis* is of Opinion, that one may know the very Time, and even the very Day, that a Woman will fall in Labour, by the Touch. This Author says, that the internal Orifice, which has preserved its Thickness and Solidity during the first Months of Gestation, begins in the later Months to extend itself, and grow flat; and, in proportion as the Time of Delivery approaches, its Bigness diminishes, inasmuch that, at last, it is only to be distinguished from the Body of the Womb by a small Protuberance, which makes the Garland in the Time of Labour. He gives us an Instance of a Midwife at the *Hôtel Dieu*, who touched thirty-five Women one Afternoon, and foretold exactly which would come first, which next, and so of the rest in Order.

2. The next thing to be learned from the Touch, is, whether the Time of Delivery is near at hand, or at a Distance; and, in order to judge of this, if we consider what has been said before, it will appear, that the more thin, soft, and flat, the Mouth of the Womb is, the nearer is the Time of Delivery.

The Mouth of the Womb is, in some Women, so dilated before Labour comes on, that two or three Pains at most are sufficient to bring the Child into the World. In others, again, whose Child is ill situated, and especially in those who are robust, advanced in Years, and with Child for the first time, the Mouth is so strongly closed, that it requires very strong Pains in order to open it: And hence we take a Prognostic of an hard and difficult Labour.

This Mouth is very different in Women of an advanced Age, big of the first Child, robust, and used to labour, from what it is in a tender young Woman, that has never suffered any Fatigue, and that has been tenderly brought up.

It is further to be observed, that the Orifice of a Womb, which lies obliquely, has a very different Appearance from one that lies strait. The Orifice of a Womb, in a direct Situation, sinks lower into the Pelvis, and may easily be felt all round with the Fingers; on the contrary, the Orifice of an oblique Womb lies so high, that it sometimes can be scarcely touched at all; or, if it lies within Reach, only one half of it can be touched.

3. Again, we know by the Touch, whether the Pains with which a Woman is seized are genuine or not; and the Knowledge of this is of a good deal of Consequence to the Woman; because, on the one hand, it is very imprudent to retard genuine Pains; on the other, when the Colic, or Gripes, or spurious Pains, are mistaken for genuine Labour, it may endanger the Life both of the Woman and the Child, to endeavour to promote them by propelling Medicines, or otherwise.

If the Woman is seized with Pains about the seventh Month, or at any time before the ninth complete, they are rather to be suspected as not genuine, and of consequence not to be promoted; but if, even before the seventh Month, true Labour declares itself, it is not to be retarded, but assisted.

Genuine Pains, therefore, are easily to be distinguished by the Touch; for, if the Pains are spurious, the Mouth of the Womb will be closer shut, as soon as the Pain is over; and, on the contrary, if the Pains are genuine, the Mouth will be more dilated and relaxed, when the Pain is gone; and therefore the Mouth must be felt before, during, and after the Pain.

4. We discover by the Touch, whether a Woman in Labour will have an easy or difficult Time; for if the lower Part of the Womb, together with the Head of the Child, is sunk into the Pelvis, in such a manner as to be easily felt, as if entering into the Vagina, without being obliged to introduce the Fingers a great Way into the Body, then an easy Labour is to be expected.

Again, if the Mouth of the Womb is perceived to be thin, soft, and very much dilated, and by its Opening the Head of the Child is felt to present first to the Birth, without either the Arm, or Umbilical Cord appearing, it is a certain Sign of an easy Labour, which nothing can hinder, but the Want of sufficient Pains.

Lastly, if the Waters are formed very broad and flat, an happy Delivery is soon to be expected.

On the contrary, if the Mouth of the Womb is at a Distance very little, if at all, dilated, pointed, thick, and hard, and the Waters contracted lengthways, a difficult Labour is to be expected.

5. We learn, again, by the Touch, whether the Child is well or ill situated. The Situation of the Child is to be examined into, by the two first Fingers well anointed with Butter, Oil, or Lard: The Right or Left-hand is to be made use of according to the Convenience of the Midwife; for the Position of the Woman, and Situation of the Child, sometimes render the Right, and sometimes the Left-hand, most commodious.

With two Fingers we are better able to take Measure of the Bulk and Condition of any Part we have a mind to examine, than with one; and hence, by introducing two Fingers, we are better enabled to judge of the Mouth of the Womb when shut; and, when open, how much it is dilated; as, also, how, and in what manner, the Head, or other Parts, present.

Care must be taken, that the Nails are pared short and smooth, without any Angles.

The Fingers must be passed directly through the Vagina, rather tending downwards than upwards, till they are passed the Bones; and then they are to be turned upwards towards the Navel, where they will meet with the Womb.

It is to be observed, that the Chin of a Child, that is rightly situated, is inclined towards its own Breast, and the Vertex is placed in the Middle of the Mouth of the Womb, or else comes farther into the Vagina; but, in order to perceive this distinctly, it is necessary, that the Mouth should be open enough to admit of at least one or two Fingers.

When the Mouth of the Womb is very much dilated, the Head of the Child comes a good deal more forwards than the Margin of the Mouth; and then the Fingers cannot be introduced farther than betwixt the Margin of the Mouth, and the Head of the Child.

The Buttocks, Knees, or Elbow, also, appear round, when they present to the Orifice, but may be easily distinguished from the Head; for the Globe of the Head is much more broad and flat than either the Knee or Elbow, and is much harder than the Buttocks: Besides, the Head may be distinguished by that soft Membrane which lies betwixt the Bones, and is called the *Fontanelle*.

It is of a good deal of Consequence to distinguish the Head from the Buttocks, Knee, Elbow, Hands, Feet, Umbilical Cord, and Placenta, before the Membranes are broke, or the Waters flow'd off; and a Neglect or Error of this Kind is sometimes attended with very ill Consequences.

Some Women are easy to be touched, others very difficult. The first have generally very easy Labours; because, in them, the Head of the Child is sunk into the Pelvis, and points directly to the Birth; in the others, an ill Position of the Womb, or bad Situation of the Child, or both, generally render the Labour difficult.

In order to distinguish well the Position of the Womb, it must be observed, that, when the Womb is in a direct Situation, the Vertex of the Child falls down of its own Accord into the Cavity of the Pelvis, and the Mouth of the Womb is easily felt at the Extremity of the Vagina; but if the Child is well-situated, and, at the same time, the Mouth of the Womb, with the Head of the Child, is placed very much backwards towards the Os Sacrum and Vertebrae, it is a certain Sign, that the Body of the Womb is not in a direct Situation, but hangs too forwards, as it frequently happens in Women whose Bellies are large, and hang very much down: And hence it comes to pass, that the Mouth is touched with Difficulty, being thrown towards the Intestinum Rectum, and Os Coccygis.

On the other hand, if the Mouth of the Womb is thrown forwards against the Os Pubis and Bladder, and for that Reason cannot slide down into the Pelvis, we may be certain, that the Body of the Womb lies too far backwards towards the Vertebrae of the Loins; and for that Reason is not in a direct Position.



But if the Mouth of the Womb, and Head of the Child, are felt very much on the Left-side towards the Os Ilium, we may be sure, that the Body of the Womb has an oblique Position, that is, lies too much on the Right Side. In the same manner, if the Mouth of the Womb, and Head of the Child, are perceived inclining to the Right Os Ilium, the Body of the Womb has certainly an oblique Position, and lies too much on the Left-side.

In the four last-named Positions of the Womb, the Woman is touched with some Difficulty: The Mouth of the Womb lying out of the Way, and at a Distance, a difficult Labour is to be expected.

6. By the Touch we, also, learn what is to be done, in order to assist the Mother and Infant, during a difficult Labour.

7. We are taught by the Touch, whether a Woman should be delivered before the Time of Gestation is complete, or not.

It frequently happens, that before the common Period a Woman is seized with violent Floodings, attended with Faintings and Convulsions. This is caused by a Fall, a Blow, Concussion, or some Injury, or else by violent Passions of the Mind, as Fear, or Sorrow. In this Case, the whole *Placenta*, or a Part of it, is detached from the Womb, and the Woman must continue to flood, so long as the Womb is kept distended with its Contents: The only Remedy, therefore, is to deliver the Woman immediately, no Medicines being of the least Efficacy in this Case.

However, this Hæmorrhage must be distinguished from the menstrual Flux, which some Women suffer for the five or six first Months of their Pregnancy, and sometimes longer; and it must, also, be distinguished from another Evacuation of Blood, to which some Women, especially those who are plethoric, are subject; which sometimes happens suddenly, and in considerable Quantities, without any ill Consequences attending.

The menstrual Flux proceeds leisurely, without any other Pains than such as are common upon the like Occasion, when a Woman is not with Child.

The other extraordinary Flux, tho' more sudden and abundant; yet, by proper Care and Remedies, ceases in a few Days, sometimes Hours.

But those Floodings which destroy the Woman without an immediate Delivery, break out suddenly, and in abundance, and flow without Intermission; except that sometimes they seem to abate, when the clotted Blood forms an Obstruction, which is only temporary: Upon this Occasion, the Mouth of the Womb will be found by the Touch to be somewhat open, and the Secundines, if entirely detached from the Womb, will be felt lying upon the Orifice, and then the Delivery is as much as possible to be hastened; and, tho' the Secundines cannot be felt, yet it is possible they may be detached from the Womb: Therefore, if Medicines have no Effect, if the Flux is continued, and if Faintings and Convulsions increase, it is absolutely necessary to deliver the Woman immediately, without any regard to the Age of the Fœtus, or the Time of Gestation; nor are we to wait for Labour-pains, because few Women in this Condition have any, or at least, any that are sufficient to expel the Fœtus. Therefore one Finger is first to be introduced into the Uterus, then two, and so by degrees the whole Hand. The Fingers are sometimes to be extended lengthways, and joined; sometimes to be bent and expanded, in order to dilate the Orifice. Then, if the Membranes present first, they must be perforated with the Fingers; after which, the Child is to be brought away by the Feet, and the Afterbirth to be fetched away as soon as possible. In case the Placenta should present first at the Orifice, that must be perforated in the same manner as the Membranes. See *ABORTUS*.

At the time of Labour, when the Mouth of the Womb lies very high, or very far backwards, so as not to be felt by the Fingers, the whole Hand should be passed to make a proper Examination by the Touch. There is no great Difficulty in doing this, especially when the Woman has had Children before. *Giffard*.

*La Motte* says, that, when the Waters are in a small Quantity, the Situation of the Child may be discovered by the Touch during the Pain; but, when they are in great Quantities, the best Time to touch the Woman is, when the Pain is just gone off.

*Hippocrates*, in his *Treatise de Natura Muliebri*, informs us, that, if the Mouth of the Womb is grown hard, I suppose he means scirrhus, it may be perceived by the Touch; and, in another Passage, he says, it feels rough.

In another Part of the same Work, he takes notice, that, in a Dropsy of the Womb, the Mouth thereof feels thin, and is scarcely perceptible.

When a Physician is call'd to a Woman in Labour, he ought, above all things, carefully to inquire of the Midwife, what the particular Posture of the Fœtus is; whether natural, or unna-

tural. The most natural Posture of the Infant is generally thought to be that, in which it presents with its Head turned downwards in such a manner, that its Face lies towards the Intestinum Rectum, its Occiput towards the Bladder, its Feet towards the Bottom of the Womb, and its Vertex, or Bregma; directly opposite to the Mouth of the Womb, as in *Tab. LIV. Fig. 2*. All other Postures and Attitudes are accounted unnatural.

There are two of these, however, which, tho', strictly speaking, they are not natural, yet approach very near to it; and may, without any great Impropriety, come under that Denomination, since in them the Infant is born alive spontaneously, and with far less Assistance than is requisite in other difficult Labours. One of these is, when the Fœtus presents with its Feet first; and the Infants brought into the World in this manner, are call'd *Agrippæ*, because a celebrated Roman of that Name was born in this Posture, as is represented in *Fig. 3*. The other Posture, which approaches pretty nearly to that which is natural, is when the Nates, or Buttocks, present themselves to the Mouth of the Uterus, and the Infant endeavours to force its Passage from the Womb, with its Body almost doubled, as in *Fig. 4*. But these two Postures are not always attended with equally happy and successful Labours; for if the Delivery should not be carefully promoted by some skilful Hand, but the Infant should be retain'd in the narrow Passage for a considerable time, it must in Process of Time die, in consequence of the strong Compression made both upon itself, and the Navel-string. However, when the Feet present first, the Infant may not only be more easily preserved, but, also, if the Work is duly gone about, more commodiously and speedily extracted, especially with the Help of a skilful Assistant. And, to speak my Mind freely, I am of Opinion, that, when other Circumstances are favourable, this Posture is highly commodious for the Operator, because in it he has an excellent Opportunity of relieving the Mother, as will appear from what follows. But, if the Infant should present in another, and a less favourable Posture, a great Variety of which daily occurs, such as those exhibited in *Fig. 5. 6. 7. 8. 9. 10. 11. 12*. the Delivery may not only be difficult, and sometimes unpracticable, but, also, the Lives of the Mother and Fœtus exposed to palpable Danger, without the skilful Attempts of a judicious Assistant. See *AGRIPPÆ*.

With respect to the Situation and Posture of the Infant in the Uterus, unless 'tis indicated by the Prominence of the Hand, the Foot, or some other Part, we must get Information from the Midwife; and, lest she, in consequence of her Ignorance, which is sometimes surprisingly great, should give an unjust and fallacious Representation, we are, in the manner already directed, to introduce a few of our Fingers, or, if the Mouth of the Womb is sufficiently dilated, the whole Hand, in order to make this Discovery. But this is to be done when the Pains remit. If the Head is contiguous to the Mouth of the Womb, which is to be carefully distinguished from other Parts, and if the Infant is, by the Hand or Fingers, found to be in a due and natural Situation, and the Labour, at the same time, does not succeed happily, we are from these Circumstances to conclude, that there is some Fault in the Mother; such as a Redundance of Blood, Weakness, or Narrowness, an Obstruction, or a Swelling of the Parts, an oblique Situation of the Uterus, or some other Imperfection; or, if neither of these should be the Case with the Mother, we are to conclude, that the difficult Labour proceeds from something preternatural in the Fœtus, such as an excessively large Head, or an incommodious Situation of it, when, for Instance, it first presents the Chin, the Face, the Ears, the Occiput, the Shoulder, the Arm, the Breast, the Back, or other Parts, which ought not to present themselves. If the Patient has neither sufficient Strength, nor due Pains, whilst, at the same time, the Situation of the Infant is natural, or if the Delivery cannot succeed on account of the Narrowness of the Parts, as in Women under their first Labour, or by reason of the Largeness of the Infant's Head, 'tis, in this Case, necessary the Patient should be relieved by corroborating Medicines, and such as promote Delivery; and, anointing the Hand with Oil, it is to be introduced into the Vagina towards the Os Sacrum, and the Os Coccygis is carefully to be repressed, especially during the Pains: Thus the Passage must be gradually dilated. When these Measures are carefully taken, the Strength of the Patient, and the genuine Pains, generally return, and the Labour succeeds happily, provided no other Circumstances concur to render it difficult: Thus, if a Redundance of Blood retards the Delivery, a Vein is to be open'd. But when the Parts are either too narrow, as in Women in their first Labour, especially when pretty old, or preternaturally dry, 'tis expedient often to anoint them with Butter, Fat, Lard, Oil, or other emollient Substances of a like Nature; and gradually to dilate them with the Fingers, and, at last, with the whole Hand. If any preternatural Membrane should obstruct or block up the Vagina, it is skillfully to be



be cut, and removed with proper Instruments. If the Parts should be so preternaturally swell'd, as to prevent the Exit of the Fœtus, digerent Fomentations, or Cataplasms prepared of the Flowers of Chamomile, Elder, and Mullein, Marsh-mallows, Mallows, and other Substances of a like Nature, boil'd in Milk, are to be applied warm. If any Tumor, large Fungus, or fleshy Excrecence, of the Vagina should happen to render the Delivery difficult, these are to be extirpated in a proper manner, and by a skilful Hand. When the Parts are too narrow in consequence of a Callus of the Vagina, or Mouth of the Womb, when any other Cause concurs to hinder the Delivery, or when the Uterus is lacerated, and the Fœtus fallen into the Cavity of the Abdomen, then there remains a deplorable, and sometimes an absolutely necessary Method of Relief, which is to perform the Cæsarean Section. If the Mother is entirely free from any Defect of this Kind, the Child found in a due and natural Posture, the genuine Pains are strong and sufficient, and yet the Birth does not succeed on account of the Narrowness of the Parts, the Patient, after having discharged her Urine, is to be placed in a proper Posture, or, after the manner of the *French*, laid across a Bed, with her Buttocks on its Edge, somewhat higher than her Head. Or she may be placed in a Chair contrived for that Purpose, and represented in *Tab. LIV. Fig. 15.* in such a manner, that the Fœtus may slip a little backwards; by which means the Hand of the Operator may have a more easy Access. She is, also, to have her Knees and Legs held firm, and secured by the Women about her. Then both the external and internal Mouth of the Womb is to be relaxed with Oils, Fats, or Ointments, and gradually dilated by the Fingers, and, if possible, by the whole Hand of the Operator, sitting before her, on a low Seat. The whole Pelvis is, also, to be gradually enlarg'd by repressing the Os Coccygis with the Back of the Hand, especially during the Pains; by which means the Head generally descends gradually, and, upon retracting the Hand, follows it; in which Case, if it can be laid hold of, it is to be gently drawn forwards. If the Fœtus should happen to present itself in an oblique and preternatural Posture, such as that exhibited in *Tab. LIV. Fig. 8.* and *9.* we are, by the Hand, to attempt its Reduction to a due and natural Posture, not neglecting, at the same time, the Use of proper Corroboratives internally exhibited, and, if the due Pains are wanting, of such Medicines as promote them, till the Delivery is happily accomplished. If the Infant cannot easily be reduced to a natural Posture, its Feet are to be sought for, by which 'tis to be extracted as a Fœtus presenting in an unnatural Situation. If the Membranes of the Fœtus should happen to be so strong and firm, as not to break spontaneously, though the Mouth of the Womb should be dilated, and the Head perceived, and by this means the Delivery is retarded, and the Mother, perhaps, too much weakened, they are to be broken with the Nails of the Fingers, or a small Hook contrived for that Purpose. But we are by no means to attempt the Breaking of the Membranes, so long as the Mouth of the Womb is not sufficiently dilated, because by this means the Delivery would be rendered still more difficult. Besides, in assisting Women in hard Labours, we are carefully to abstain from the Use of Instruments, and only employ our Hands, so long as the Mother has a competent Degree of Strength, and the Child is perceiv'd to be alive; otherwise we run a Risque or severely injuring, if not of killing, the Infant with the Instruments. But if the Mother's Strength is exhausted, and her Death to be apprehended from a longer Delay, we are to take other Measures, and extract the Fœtus by the Feet, and, if that cannot be done, by proper Instruments; for it is better in this Case, by the Attempts of Art, to preserve, if possible, both the Mother and the Fœtus, than by trusting too much to Nature, as the Timorous and Unskillful generally do, to neglect and destroy both the Fœtus and the Mother.

I must here remark, that the best Authors and Practitioners agree, that if a Child presents in any Posture but that which is natural, the best Method of Relief is to bring the Child away by the Feet, without attempting to reduce it to a natural Situation; for thus the Birth is accelerated with less Danger and Difficulty, both with respect to the Mother and the Child.

We must here observe, that though this Posture, in which the Head of the Fœtus is adapted to the Mouth of the Womb, and the Vagina, is looked upon as natural, yet upon account of the Causes above-mentioned, but especially when the Situation of the Uterus is oblique, a Circumstance first remarked by *Sigismunda*, and afterwards by *Deventer* and *Hoorn*, a *Swede*, or when for some other Reason the Crown of the Infant's Head does not correspond to the Axis of the Vagina, but presents the Side of the Head, or the Face, as in *Fig. 8.* and *9. Tab. LIV.* or the Ears, or the Occiput, it frequently occasions a Labour so difficult, that the Child cannot be brought into the World alive, either by the Force of Nature, or the Assistance of Art. Unskillful Practitioners generally, though falsely, lay the Blame

on the Bulk of the Head, when 'tis no larger than it naturally ought to be, and has even already passed the Mouth of the Womb. But this difficult Birth, especially if the Side of the Head, or Ear, present themselves, arises rather from the Shoulders, which sometimes bear against the Bones of the Pelvis, in such a manner, that they cannot be remov'd, either by the Force of Nature, or the Assistance of Art, especially when the round and slippery Head cannot be laid hold on, and commodiously drawn out, with the Hands; by which means the Fœtus is gradually so compressed in the Uterus, as to fall a Sacrifice to its Situation. Hence it is, that the most skilful are so much afraid of these Situations, which by the promising Appearance deceive the most sagacious, that they are more willing to afford their Assistance in any other Cases, because in these their Hands can generally have Access to the Uterus, in consequence of which the Fœtus can be extracted; whereas in the former the Head is so forcibly thrust, and, as it were, wedg'd obliquely into the Mouth of the Womb and Vagina, and the Shoulders, at the same time, bear against the Bones of the Pelvis, that the Access of the Operator's Hand, and consequently the only Means of relieving both Mother and Child, is prevented; whilst the alluring Prospect of an happy Delivery at the Beginning, was the Cause of neglecting the proper Means of Relief, when they were practicable. See *CÆSAREAN SECTION.*

This seems to have been the Reason, why, when all other Arts fail'd, in Cases of this Nature, the celebrated *Palsyn*, a skilful Surgeon of *Ghent*, used neither Hooks, Forceps, or sharp Instruments, for fear of tearing and destroying the Infant whilst alive, but a double Instrument excavated like a Spoon, or Hook, broad, smooth, and blunt, by the Application of which to both Sides of the Head, the Fœtus may be extracted without a Dilaceration of the Head, or any other more terrible Injury, see *Tab. LIV. Fig. 16.* The real Size and Bulk of the Instrument sent me, says *Heister*, was only as large again as the Figure here exhibited. The Inventor would principally have Instruments of this kind used when the Fœtus is still alive, or, at least, when its Death is not sufficiently certain. It, also, frequently happens, that Infants, and more especially their Heads, in difficult Labours of this kind, and their long Continuance in these narrow Parts, are so compressed and weaken'd, that no Remains of Life are perceiv'd in them. Being thus taken for dead, sharp Hooks are employed for extracting them; by which means they are miserably mangled and torn to Pieces, I myself, says *Heister*, have used this Instrument contriv'd by Mr. *Palsyn*, but without the proposed Success; for, if the Head is only gently compressed by them, the Fœtus cannot be extracted; if, on the contrary, it should be strongly compressed, 'tis to be dreaded, lest the tender Cranium should be crush'd. When Experience had taught me this Disadvantage of Mr. *Palsyn's* Instrument, I attempted an Improvement of it; for which Purpose I join'd them both together, by means of a moving Joint or Hinge, that thus the Head might be more commodiously laid hold of; but neither did this succeed upon Trial. This, therefore, is often an highly inconvenient and disadvantageous Posture of the Infant, since it either requires the Cæsarean Section, or that, for the Preservation of the Mother, the Fœtus should be extracted dead or alive, by the Hooks represented in *Tab. LIV. Fig. 17. 18.* or by other proper Instruments. But we shall, in the Sequel, point out some other particular Means of affording Relief in Cases of this Nature.

If the Fœtus is preternaturally situated, for Example, in the different Manners represented in *Fig. 5. 6. 7. 8. 9. 10. 11. 12.* as, also, in the Figures exhibited by *Scipio Mercurius*, *Welschius*, *Guillemeau*, *Mauriceau*, *Poelterus*, *Peu*, *Viardelius*, *Sigismunda*, *Deventer*, *Mellius*, and others, unless these preternatural Situations and Postures are altered by the Hand, the Delivery cannot, without great Difficulty, succeed; but the Lives, both of Infant and Mother, must be exposed to imminent Danger: For forcing Medicines, and the Efforts of the Mother, in such Situations of the Fœtus, are so far from being beneficial, that they endanger the Death of the Fœtus by the strong Compression of the Uterus, or even the Death of the Mother, or at least some formidable Disorder, in consequence of a Loss of Strength, a violent Hæmorrhage, a Rupture, or Gangrene of the Uterus. No Measure is, therefore, more expedient in Cases of this Nature, than, as soon as possible, to introduce the Hand into the Uterus, rectify this unnatural Posture, and extract the Fœtus. Various Methods of obtaining this End are proposed by different Authors; but they are generally so improper and pernicious, that they can never be reduced to Practice. But the most commodious and infallible Method of reducing a Child to a proper and natural Situation, and bringing it into the World, is, after anointing the Hand with Oil, to introduce it into the Womb as cautiously as is possible, see *Tab. LIV. Fig. 6. 10. and 11.* and then searching for the Feet, and laying hold of them, to extract it by little and little, with all imaginable Circumspection.

This



This we lay down and recommend to Practitioners as the most important and universal Rule to be observed in reducing Children, and extracting them, except in a few Cases; when, for Instance, the Head deviates very little from its natural Posture, and may be easily reduced to it; for not only the surprising Constriction and Narrowness of the Uterus of Women in Labour hinder the Turning of the Fœtus, as some of the less skilful Practitioners formerly directed, but, also, the Roundness and Slipperiness of the Head itself is generally a great Obstacle to its being secured in such a manner, that it can be brought to a natural Posture in so little Room: And, even when this is attempted, if the Head should be laid hold of so firmly as is requisite for its being reduced to its natural Posture, there is considerable Danger, lest it should be compressed, the Brain injur'd, and the Eyes, or any other Part of the Head, hurt: So that the Advice of those who order the Fœtus in the Uterus, however unnatural its Situation is, to be reduced, is not only impertinent, but hurtful and preposterous. I myself am no Enemy to the Opinion of *La Motte*, who, tho' the Head of the Fœtus can be reduced to its natural Posture, yet orders the Child to be extracted by the Feet; for the Fœtus is more expeditiously brought away in this manner, than reduced to a natural Posture; and, by this means, the Mother is not only speedily eased, but, also, the Infant generally brought into the World alive. But when, after a great deal of Labour, the Head is reduced to a natural Situation, the Delivery is neither accomplished, nor the Mother eased; but the Work is rather left to Nature, and the Patient is to begin her Struggles afresh; which, on account of her Weakness, or some other accidental Causes, she is frequently not able to do; so that, after all, the Feet are at last to be sought for, and the Fœtus extracted in that manner. And in this Case 'tis with the greatest Difficulty we can reach the Feet, because the Head is strongly pressed upon by the Uterus. The Fœtus, in the mean time, is either dead before this, or dies in the Extraction, whereas, before, it might have been brought into the World alive. The Mother is, also, now in a far worse Condition than at first, since she often dies after this Usage, or is obliged for her Safety to have the Fœtus taken away by Instruments; so that I think it far more expedient to bring away such a Fœtus by the Feet, than by long, and often unsuccessful Attempts, to reduce its Head to a natural Situation.

But, before we proceed in our Directions with respect to the Reduction and Extraction of Children, it will be expedient here to point out in general, in what Cases this Reduction of Infants, and their Extraction by the Feet, are necessary. It is, therefore, to be used, first, in all Cases where any other Part of the Body than the Head, and especially its Crown, present themselves at the Mouth of the Womb. See *Tab. LIV. Fig. 5. 6. 7. 8. 9. 10. 11. 12.*

Secondly, In all Cases, where any other Parts of the Body than the Head are protruded thro' the Mouth of the Uterus, and especially the Hand, or the Navel-string, provided the Operator cannot so replace it, that it may not be again thrust out by the Access of fresh Pains.

Thirdly, When any Side of the Head, as the Ears, the Face, the Chin, or the Occiput, presents in such a manner, that the Head may be easily reduced to its natural Situation, as in *Fig. 8. and 9.*

Fourthly, When either the Back, or the Belly, as in *Fig. 5. and 7.* or any of the Sides, present to the Mouth of the Womb.

Fifthly, In natural Postures of the Fœtus, when, for certain Causes already mentioned, the Delivery is not promoted, but 'tis rather to be dreaded, that the Infant cannot be born alive, and that the Labour threatens Death either to the Fœtus, or to the Mother, or to both. Instances of this Kind are, when violent Hæmorrhages of the Uterus, excessive Weakness, Convulsions, and Epilepsies, happen in Women during Labour; for, as, in all these Cases, both the Fœtus and the Mother run a Risque of being soon destroy'd, the former is to be extracted by the Feet with all possible Expedition, since 'tis better and safer, speedily to extract the Fœtus, whilst both that and the Mother have a sufficient Degree of Strength, than by long and unnecessary Labour to reduce the Child to another Posture, and thus extract it; a Circumstance which may prove detrimental both to the Mother, and the Child.

Sixthly, When the Navel-string is protruded from the Uterus, before the Head of the Fœtus: For if, in this Situation, the Child is not immediately extracted; it soon dies, because the Communication and Circulation of Blood betwixt that and the Mother, is intercepted by the Compression of the Navel-string.

Seventhly, When the Womb has an oblique Situation, tho' the Child should be duly situated; for in this Case 'tis generally more easy to extract it by the Feet, than to reduce the Womb to a direct and natural Situation. In all these, and other Cases

of a like Nature, it is, for many Reasons, and especially because Delays are dangerous, expedient to hasten the Extraction, rather than delay it, as *Deventer* and *Hoorn* have sufficiently demonstrated.

Among the great Variety of preternatural Postures, one of the most dangerous, as well as common, is that, in which the Hand, or Arm, presents, or is protruded, as in *Fig. 11.* With respect to this, we lay down the following Caution; that if, in the Beginning of the Labour, the Hand of the Fœtus is perceived through the Membranes, it often spontaneously retracts it, if the Midwife presses, and, as it were, pinches its Fingers with hers, after which it often presents the Head, instead of the Hand or Elbow; by which means the Labour is frequently rendered easy and natural, as is observed by *Sigismunda* and *Deventer*: But, if the Waters are already discharged from their containing Membranes, this Pinching is of no Advantage; because the Infant, in consequence of the strong Contraction of the Uterus, cannot retract its Arm. Most Authors, in this Case, advise the Midwife to replace it in the Uterus, bring the Head to its Mouth, commit the Work to Nature, and to wait for a natural Delivery: But because this requires great Labour, which is frequently unsuccessful, and is also accompanied with Danger, because by the Reduction we often lose the most favourable Opportunity of delivering the Woman; 'tis, in my Opinion, far more prudent forthwith to extract the Child by the Feet; for, when it presents one Arm, it lies in such a transverse Posture, that the Head and Neck are reclined on one Side, whilst the Breast, Abdomen, and Feet, are turned towards the other; so that the Body cannot follow the presenting Arm. If, in this Case, the Extraction should be attempted by pulling the Arm violently, as unskilful Midwives generally do, the Child would be more firmly fixed in the Passage, but could not possibly be extracted, unless it was imperfect, or at least very small: Instances of which I have sometimes seen.

By Attempts of this kind, on a perfect Child, the Arm will be torn from the Body before the Birth can be accomplished, especially if the Infant is either of a due Size, or somewhat larger than ordinary. Lest, therefore, the Child, in this dangerous Situation, should perish together with the Mother, which frequently happens in a very short time, it is highly necessary, since Medicines are of no Advantage, and since the replacing of the Arm, and Reduction of the Head to a natural Position, are of no Use, to introduce the Hand, anointed with Oil, into the Uterus, if Necessity requires it, as in *Fig. 10. and 11.* Then searching for the Feet, and laying hold of them in the manner we shall hereafter more fully direct, the Posture of the Child is to be inverted; and the protruded Arm being thrust back by the other Hand of the Operator, the Child is to be brought away; which, however, especially when the Fœtus has remained long in such a Situation, cannot be done without a great deal of Trouble.

Full Directions for conducting such a difficult and dangerous Delivery as this, will be of great Service to the Operator, with respect to the Treatment of a great many others, provided he is acquainted with the Structure of the Bones of the Pelvis, and duly adverts to the Situation of the Fœtus.

We must always take care, when we intend to introduce the Hand into the Uterus, to make that Attempt in the Part of the Vagina which is contiguous to the *Rectum*; because, in the superior Part, the Bones of the Pubes render it less easily practicable.

As Cases in which the Arm presents, or is already protruded, are of such Importance, as to be a kind of Model for Practice in other difficult Labours; we therefore think it necessary to be as full and explicit upon this Point as is possible. That a Labour, therefore, of this kind, may succeed happily, the Operator is, above all things, to take care, that the Patient be placed in a proper and commodious Posture; because in this, as well as in all other Operations, 'tis not to be doubted but this Circumstance must contribute to the speedy and successful Relief of the Patient. The Mother, therefore, must be either placed in a Chair made for that purpose, and furnished with a Back which may be depressed at the Pleasure of the Operator, and, as it were, transformed into a Bed, such as that exhibited in *Tab. 54. Fig. 15.* Or she must be laid upon her Back across a Bed, or Table, or upon four Stools situated by two and two, opposite to each other, with her Head a little depressed, her Buttocks at the Edge of the Bed, Table, or Stools, somewhat higher than the rest of her Body; and her Thighs carefully separated by the Assistants, in such a manner, that the Operator may have a full Command of her lower Belly, and an easy Access to the Uterus, and the ill-situated Fœtus. When these Measures are duly taken, the next thing to be done is, carefully to examine which Hand of the Fœtus is protruded from the Uterus, that by this means we may the more easily discover, to what Part of the Abdomen the Feet are turned,



and, consequently, where they are to be found: If, therefore, after such a Scrutiny, we should find the Feet turned to the Left Part of the Abdomen, as in *Fig. 11.* anointing the Right-hand with Oil, Lard, or Butter, gently introducing it into the Uterus along the Arm of the Fœtus, and placing it under the Armpit, the Operator is gently to thrust back the Arm and Head, that by these means he may obtain more room for the Ingress and Motion of his Arm; after which, passing his Arm gradually, but without Violence, along the Abdomen, Thighs, and Legs of the Child, he is to endeavour to lay hold of its Feet. Great Dexterity and Caution is requisite in this Attempt, since 'tis often very difficult to lay hold of the Feet, which frequently reach a great Way upwards, and lie at a considerable Distance from each other. In some Cases, however, and especially when the Misfortune is recent, the Uterus as yet not much contracted, and the Feet not separated, this Attempt succeeds pretty readily. All Attempts, however, are vain, unless the Feet be laid hold of: And the Difficulty of succeeding in this is increased, because the Uterus, now remarkably contracted, with great Difficulty admits the Hand; whereas 'tis, for the most part, necessary it should be introduced as far as the Flexure of the Elbow, as may be seen in *Fig. 10.* and *11.* When, by a long Protraction of such a Scrutiny for the Feet, the Operator's Arm is become weary, he may withdraw it, and take a proper Interval of Respite, or begin his Work afresh, by forthwith introducing the other Hand. When the Feet are thus found, the Child is cautiously to be drawn forwards; by which means it is turned, and at last extracted. But, in this Attempt, we are not to draw the Infant upwards, nor strait forwards, but downwards; because there the Bones which form the Pubes, are at the greatest Distance. If at first only one of the Feet should be found, (for the Operator can rarely find both at once) it is cautiously to be drawn a little out of the Uterus, and a Fillet is to be gently wrapped about it, in order to prevent its Retraction, or Slipping-back. After this, the Operator's Hand is to be passed along the internal Side of the extracted Foot, which is known by the great Toe, to the Top of the Infant's Thigh; and thence, as in *Fig. 12.* descending by the other Thigh, till he comes to the Foot, he is to extract it in the manner already directed. Then both Feet, on account of their natural Slipperiness, are to be wrapped up in a dry and warm Linen Cloth, that they may be the more firmly held, and commodiously drawn forwards; and thus the Child, provided the Belly is turned towards the Os Sacrum of the Mother, is to be gradually extracted. If on account of the Narrowness of the Uterus, or any other Cause, I cannot, says *Hister*, with my Hand reach the Foot, I generally lay hold of the Thigh, by its means turn the Fœtus, bring the Knee to the Mouth of the Womb, and, at last, extract the Foot as far as the Knee; then I bring out the other Foot, in the same manner, and thus gradually extract the Fœtus entire.

If during the Extraction the Child is found lying on its Back, as in *Fig. 3.* with its Buttocks towards the Os Sacrum of the Mother, then, drawing out the Legs of the Fœtus, as far as the Belly, and laying hold of the Abdomen and Buttocks on both Sides, lest otherwise the Legs should be distorted, or injured, most Authors order it to be cautiously turned in such a manner, that it may lie with the Belly towards the Os Sacrum of the Mother; otherwise 'tis to be apprehended, that the Chin may catch upon the Bones of the Pubes, and the Uterus contract itself about the Neck of the Fœtus, and destroy it, as sometimes happens by the Ignorance of the Midwife. On the contrary, such Infants as are seasonably and cautiously turned upon their Bellies, are generally successfully brought away. We must, also, examine, by what Side it may be most easily turned upon its Belly; for 'tis frequently observed, that the Business succeeds easily when the Fœtus is turned on a certain Side, whereas, when it is turned on the other, the Neck is easily distorted. If in this Turning the Fœtus is extracted not in a straight, but in a spiral Direction, the Work generally succeeds the better. If the Legs of the Infant are extracted as far as the Abdomen, and if we are not inclined to alter the Posture, so as that the Face may be turned towards the Os Sacrum, the Hand is to be passed into the Uterus, along the Abdomen of the Fœtus, and under the Arch of the Bones of the Pubes, in such a manner, that, whilst the Fœtus is extracted with one Hand, the Chin and Face may slide along under the other, so as not to be retained by the Bones.

Almost all the Moderns order the Fœtus, when thus lying on its Back, to be turn'd upon its Belly; but *Hoorn*, a skilful and judicious Artist in this Way, for Reasons of Importance, doubts, whether 'tis not more expedient not to turn a Fœtus in this Position; but rather by other means to disengage it from the Bones of the Pubes, in the manner I shall afterwards direct, since by Attempts of this kind the Body of the Infant may indeed be turned, whilst at the same time its Neck is so

distorted and twisted, as to create more Danger to itself, and greater Trouble to the Operator, than a careful disengaging of the Head from the Bones of the Pubes would have done. *Hoorn. Obs. 26.* See *AGRIPPÆ*.

Attempts to replace a protruded Arm in the Uterus are in this Case not only superfluous, but, also, frequently noxious, and sometimes absolutely impossible; for, after finding one of the Feet, whilst the Infant is a turning, it is either spontaneously retracted, or easily replaced by the other Hand of the Operator, and soon after extracted with the Fœtus; so that the Operator, in this Case, is under no Necessity of creating either superfluous Trouble to himself, or unnecessary Pain to his Patient. If the Feet of the Fœtus are turned towards the Right Part of the Abdomen, they are most commodiously discovered, and brought out with the Left-hand; but, if the Operator is not sufficiently dexterous with his Left-hand, he may perform this Operation with his Right. But, lest any one should be ignorant of the Reason, why, when one Foot is extracted, the other must be found with so much Caution, by introducing the Hand to the Top of the Thigh, it must be observed, that this Advice is necessary, lest, if there should be Twins in the Womb, the Leg of the wrong Fœtus should be laid hold of; and thus, by violent Attempts to extract the Legs of two different Children, both should be considerably injured. *La Motte*, and a later Writer, laugh at this Caution, and pronounce it entirely superfluous, because Twins are not included in one common Membrane, but each has one peculiar to itself, in consequence of which the Feet of the different Fœtuses cannot be confounded and mixed with each other. But I would have these Authors reflect, that the Membranes may break at one and the same time, and consequently the Feet of the different Infants may be confounded and mixed: So that though this Caution is not always necessary; yet *Mauriceau* and *Deventer* are of Opinion, that it is not entirely to be neglected.

The Methods of Procedure already specified and directed are of such a Nature, that they serve as a kind of Model for Practice, in most unnatural Postures of the Fœtus; for, as I have already observed, unless the Head presents duly and directly to the Mouth of the Womb, without any farther Delay, and before the Womb is forcibly contracted, the Feet are carefully to be sought for, and the Fœtus is to be extracted by them; for by these Measures, if taken at first, the Labour is rendered easy to the Mother, and the Fœtus generally brought away alive. But, if the Infant should remain in this Posture for a considerable time, the Womb is so violently contracted, that the Hand cannot without the greatest Difficulty be introduced, and perform its Office. Hence many Disadvantages may accrue, both to the Mother, and the Fœtus. A prudent Expedition is, therefore, absolutely necessary in Cases of this Nature, for this Reason principally, that the Life of the Fœtus is endangered by the violent Compression from the Womb.

From what has been said, the following Rules may be deduced as so many practical Corollaries.

First, When the Feet of the Child present, as in *Tab. LIV. Fig. 3.* they ought not to be put back; much less ought the Head, as some direct, to be reduced to a natural Posture, since this Practice scarcely ever succeeds. But the Midwife, or Operator, taking hold of the Feet, may better, sooner, and more effectually, extract the Child thus, than when its Head is directed to the Mouth of the Womb, provided the Child, as we have already observed, is extracted not with its Back, but with its Face and Belly, towards the Os Sacrum of the Mother: But 'tis more convenient to deliver Women in this Case, when laid on their Backs in a Bed, than when seated in the common Chair contrived for this Purpose.

Secondly, If the Hand presents itself with one or both of the Feet, the Feet are to be laid hold of, and extracted, gently repressing the prominent Hand at the same time.

Thirdly, If the Hand presents itself with the Buttocks, almost the same Measures are to be taken, provided the Feet can be found; but, if the Operator cannot lay hold of these, the Buttocks, together with the whole Fœtus, are to be extracted in that Posture.

Fourthly, When after the Extraction of one Foot, the other cannot be found, and when we find by the Buttock of that Side, that the Foot, as yet retain'd in the Womb, is bent forwards, and rests against the Belly of the Child, it may be extracted by one Foot.

Fifthly, If by one Foot the Child cannot be turned, and at the same time the other cannot be found, the Foot which is found is to be secured by a Fillet, and drawn a little towards the Mouth of the Womb; then the other Foot is to be searched for, and joined to the former: Thus the Child may at last be turned.

Sixthly, If, in extracting the Child by the Feet, the Navel-string should appear between its Thighs, we are, for a little, to desist from the farther Extraction, and the Navel-string is to be



be drawn somewhat farther out of the Womb, so as to form a kind of Doubling; then, bending the Knee of one Leg, the entire Leg is to be passed through the Doubling; by which means the Fœtus may be afterwards extracted freely, and without the Danger of any Injury. If, on the contrary, the Navel-string was left between the Legs, till the whole Child was extracted, it might either lacerate the Navel of the Infant, or happen to be broken near it, so as not to admit of being tied; from which Accident very terrible Symptoms sometimes arise.

Seventhly, When the Child is extracted by the Feet, the Operator has no great Reason to be over-solicitous about the Arms; because, for the most part, they follow the Body easily; and if we should attempt to extract them separately, and before the Head, the Neck, unless assisted by other means, would be compressed by the Contraction of the Mouth of the Womb; and the Death of the Child, or some other Misfortunes, brought on; all which are prevented by leaving the Arms, or at least one of them, to be brought away together with the Head.

Eighthly, When only one Foot appears, as in *Fig. 12.* 'tis by no means necessary to thrust it back, in order to reduce the Infant, and bring its Head to the Mouth of the Womb; nor ought the Child to be extracted by this Foot alone, but 'tis better when it is extracted as far as the Knee, with the Hand to seek for the other Foot, which is generally at no great Distance from it, as in *Fig. 12.* and, laying hold of both together, to extract the Child in the manner already directed; but, when one of the Legs is situated longitudinally on the Abdomen, we may, as has been already observed, make the Extraction by one Foot, provided, by laying hold of the Buttocks, the Operation be duly assisted.

When the Child presents its Buttocks, which it frequently does, as in *Fig. 4.* it may indeed be brought alive into the World, but the Labour is generally very difficult, especially in Women whose Parts are not very large; for, as, in this Case, the Child must be extracted with its Body, as it were, doubled, and its Legs applied to its Belly, it runs an Hazard of being destroyed by the forcible Compression of the narrow Passage; which frequently happens, especially when Women are delivered alone, or at least without the Assistance of a skilful Midwife; or, if this Misfortune should not happen, yet 'tis more than probable, that the Passage of the Mother must be miserably lacerated. For this Reason, if a Part of the Buttocks already appears, or at least is so far fallen down, that it cannot be commodiously reduced, it is necessary forthwith to lay the Woman on her Back, with her Buttocks elevated. Then thrusting back the Buttocks of the Infant a little, and passing the Hand along the Thigh to the Knee, we must lay hold of one of the Feet, which in this Case are not at a great Distance, and so extract it; then the other is, if possible, to be found, and extracted in the same manner: But, if both Feet cannot possibly be found, let that which is already laid hold of be extracted, and, by its means, the whole Body of the Child. If the Buttocks are already so far advanced, that the Child can neither be thrust back, nor its Foot laid hold of, then, laying hold of both Buttocks with both Hands, especially by introducing the fore and middle Fingers by way of Hook at the Groins, the Fœtus is forthwith to be artfully extracted. See *Fig. 4.* And this is to be done with all possible Expedition, lest by Delays, or the violent Compression made by the Parts, the Child should be destroy'd.

When a Child presents the Buttocks, a Midwife may easily be mistaken, and take them for the Head, before the Membranes break; but, so soon as ever the Waters are run off, 'tis easy to distinguish them.

If they are sunk low into the Passage, the Child must be brought in the Posture it presents in; but then it frequently causes a long and difficult Labour. *La Motte* says, he has delivered a great many Women in this manner, without losing one; but, if the Breech is not sunk very low, and the Feet can be come at, they are to be brought down.

In case the Child cannot be brought away by the Feet, but the Breech comes first, the Fingers are to be introduced on each Side the Child, into the Groin, as soon as it is sunk low enough to admit of it; and by this means the Child is to be pulled forward.

In this Situation a Child frequently discharges the Meco-nium; the Buttocks are readily distinguished from the Head, by the Separation betwixt them; and by the Scrotum, if a Boy.

When a Child presents the Breech, and lies very high, and the Membranes are not broken, the Fingers must be introduced into the Vagina; and, if they are not long enough, the whole Hand, in order to be perfectly sure, that 'tis the Breech which presents, it being otherwise very difficult to distinguish it from the Head. This is a thing of much Consequence; for, when the Buttocks are sunk down low, 'tis difficult, and often impossible, to bring the Child by the Feet. If, therefore, the Midwife cannot make herself certain, by introducing the Fingers, or Hand, *La Motte* advises breaking the Membranes,

in order to be farther assured, and to bring the Child away by the Feet.

*La Motte* also advises, to break the Membrane, and bring away the Child by the Feet, as soon as ever 'tis known, that it presents the Buttocks.

He gives a Case, where he was called in very late, the Woman having been in Labour four Days, and the Buttocks being sunk so low, that 'twas impossible to return them, and the Passage being so strait, that he could not get a Nail of his Fingers between that and the Child, much less could he pass his Fingers to the Groin: However, at last, he introduced, first, one Finger, then two, and, by degrees, the whole Hand, into that Part of the Vagina which is nearest the Anus, acting all the while very gently; then he passed his Hand along the Thighs and Legs, till he came to the Feet, which he joined; and, pushing the Knees towards the Child's Belly, he at last made way for the Feet, brought them out, and so delivered the Mother.

If the Shoulders of the Child, after the Head and Neck are brought out, should stick in the Womb, we are then, after prudently applying our Fingers under both Arm-pits, to extract the Arm which yields most easily; and the whole Body, being attracted by it, for the most part, follows without any great Difficulty, especially if the Child is pressed towards the Intestinum Rectum, where the Interstice between the Bones of the Pubes is largest; which Caution is also to be observed in most other Cases. If, on the contrary, the Child should have its Feet and Abdomen protruded, but stick at the Arms or Axillæ, we are, with our Fingers, cautiously to extract one of the Arms, leaving the other within; then, by the Assistance of the extracted Arm, and the rest of the Body, we are to bring away the whole Child. And this Method generally succeeds pretty well, especially when the Child lies with the Face turned towards the Mother's Os Sacrum. The Arm left within, as we have already observed, hinders the Womb from contracting about the Neck of the Child, which it otherwise very readily does, and frequently proves fatal to the Infant.

When the Shoulders are too large for the Passage, they cause a difficult Labour, by sticking at the Bones of the Pelvis.

When the Obstacle is the Shoulder's sticking in this manner, the Woman has strong and repeated Throes; the Waters flow off, and the Head sinks well into the Passage, but can advance no farther; mean time there is an entire Liberty to pass the Hand round the Head.

The Method, in this Case, is, to depend pretty much on the Woman's Pains, assisting a little with the Hands placed on each Side the Child's Head, near the Ears; but the Head must not be pulled too hard, for fear of separating it from the Body.

Care must be taken to distinguish this Case from that where the Child, presenting with the Face towards the Os Pubis, is hooked there by the inferior Jaw.

*La Motte, Obs. 460.* gives a Case of this kind, where he was obliged to slide his Fingers under the Arm-pits, in order to bring the Child away after the Head was protruded; but, he says, the Fingers are not introduced in this manner under the Arm-pits, without a great deal of Difficulty.

It, also, frequently happens, that when an Infant has its Feet either spontaneously protruded, or extracted by the Hand, the Mouth of the Womb is so contracted about the Neck, especially when the Chin and Face lie towards the Mother's Belly, and the Hand cannot be soon enough introduced between the Face, and the Bones of the Pubes, that the Child at last sticks there. In this Situation the Child cannot possibly live long, because it is retain'd, and, as it were, suffocated, by the Mouth of the Womb, which strongly compresses its Neck. If, in this Case, we should attempt forcibly to draw the Child directly forwards, we should be in Danger of separating the Head from the Body, and leaving it behind, instead of bringing it away entire, especially, if the Infant lies with the Face towards the Mother's Belly, and has its Chin retain'd by the Bones of the Pubes. For this Reason we are rather to endeavour, if the Face lies towards the Os Sacrum of the Mother, to pass the Hand under the Neck, beyond the Chin and Mouth of the Fœtus, and with two Fingers so to lay hold of the Superior and Inferior Jaws, that the Nose may lie between them, and, pressing at the same time towards the Intestinum Rectum, thus gently to extract the Head, and whole Child. Most Authors advise, that, in this Posture, the two fore Fingers should be introduced into the Mouth of the Child, and the Head, by their means, drawn out; but because the tender Jaws are easily injured, or perhaps torn off, I think the former Method preferable to this; and the celebrated *Hoorn* is, also, of the same Opinion. If the Child should happen to lie with the Face towards the Mother's Belly, and its Chin stick on the Bones of the Pubes, as in this Case it generally does, we should sooner pull the Head from the Body, than extract it, the Bones of the Pubes so strongly resist the Egress of the Chin. Lest, therefore, the Child should be suffocated, or have its Head



Head torn from the Body, the Mother is forthwith to be laid in a proper Posture; then, passing one Hand into the upper Part of the Vagina, the Chin and upper Jaw are to be laid hold of in the manner already directed, whilst with the other Hand, apply'd to the Region of the Pubes, the Head is to be carefully pressed towards the *Intestinum Rectum*. The Fœtus, in the mean time, is to be gently drawn forwards by an Assistant, till it is totally extracted; which, on account of the strong Resistance of the Bones of the Pubes, is an Operation so difficult, that, notwithstanding the greatest Care of the Operator, the Infant can very rarely be extracted alive. But *Hoorn* thinks, that this End may be more commodiously obtain'd, when an Assistant, laying hold of the Feet, raises them upwards, and, at the same time, draws gently, whilst the Operator either proceeds in the former Method, or, passing his Left-hand under the Occiput, he is to repress the Os Coccygis, and with the Right manage the Face in the manner already mentioned. By this means the Neck and Occiput, may be first brought out, and, at last, the Face, in such a manner, that the Chin may be freed and disengaged from the Bones of the Pubes. According to *Hoorn*, it sometimes happens, that whilst we endeavour to turn the Child in such a manner, that the Belly may be turned towards the Os Sacrum of the Mother, the Head is not turned along with it, but the Neck twisted; and the Child being extracted as far as the Neck, the Chin remains behind the Bones of the Pubes, in the same manner as if the Infant had not been turned. If this should happen, we are either to proceed in the manner already directed, or to relieve the Patient by a prudent and seasonable Introduction of the Hands. If a Child in this Situation is already dead, it may be extracted in the same manner, tho' with somewhat more Freedom and Violence.

## MISCELLANEOUS OBSERVATIONS.

The Delivery must not be attempted when the Feet present, or any other Part, till the Mouth of the Womb is sufficiently dilated by the Force of natural Pains, except in case of great Flooding or Convulsions, or a dead Child. *La Motte*.

When the Feet present, accompany'd by the Head, or the Head and Hands, the Head must be thrust back with one Hand, whilst with the other the Feet must be joined, and brought away.

If both Feet cannot be found without Difficulty, a Woman may be delivered by one only. But *La Motte* cautions against drawing one Leg with the same Violence as both may be pull'd with, for fear of stretching the Ligaments, and laming the Child for ever.

The same Author, *Obs.* 458. reports a Case where the Feet presented, with the Toes towards the Mother's Belly, and the Heels towards the Anus; when he try'd to bring the Feet forwards, he found them immovable; upon a farther Examination, he found the Buttocks of the Child were sunk down, and kept the Knees bent upwards, in such a manner, as to fill up entirely the Passage, insomuch that it was impossible to move the Legs in this Situation. He delivered the Woman by thrusting back the Buttocks, whilst he kept hold of the Feet, and then brought away the Child with a great deal of Ease.

That this important Branch of Medicine may be the more perfect, and the better adapted to the Necessities of young Practitioners, I shall subjoin some of those Directions, which to me seem of the greatest Importance.

First, then, if, whilst the Membranes are as yet entire, and the Mouth of the Uterus sufficiently dilated, any other Part than the Head is perceived by the Touch, such as the Foot, the Hand, the Elbow, the Axilla, the Knee, or the Navel-string, the Membranes may be then safely broken with the Nails, or some proper Instrument; after which, the Feet are to be sought for, and the Child is to be extracted by them.

Secondly, If the Head is not in its natural Situation, but deviates a little from it, and is capable of being reduced, this is to be attempted with the Hand; but if it cannot be easily done, the Child, left a Delay should destroy it, is to be forthwith extracted by the Feet.

Thirdly, When the Waters are too soon discharged, and at a time when the Midwife is not present, we are to search whether any Part of the Child is to be perceived; and, if not, we are to wait till some Part or other can be distinguished by the Touch. If, then, we find the Head in its natural Situation, an happy Labour generally ensues; but, if any other Part presents itself, the Feet are forthwith to be searched for.

Fourthly, When, in the Beginning of the Labour, the Child presents its Chin and Face, with its Forehead resting on the Bones of the Pubes, which is a very disadvantageous Posture, then the Face is, with the Right-hand, to be so brought towards the *Intestinum Rectum*, with the fore and middle Fingers apply'd to the Superior Jaw in such a manner, that the Nose may lie between them; at the same time, with the Left-hand apply'd externally to the Pubes, the

Head of the Fœtus is to be pressed down from the Os Pubis to the Vagina, till it comes to its natural Situation. This may be still more easily done, if, after introducing the Left-hand into the Vagina, the Os Coccygis is carefully depressed, whilst with the Right the Face is at the same time depressed. If the Child has remained in this Condition for a considerable time, the Mother is to be laid on her Back in the manner already directed, and the Reduction of the Head to its natural Posture attempted in the manner already, also, described. If this End cannot be speedily obtain'd, or if we want to avoid so troublesome a Piece of Labour, we are forthwith to pass the Hand under the Abdomen to the Feet, and by them, repressing at the same time the Head with the other Hand, to attempt the Extraction of the Child. We are, also, to proceed in the same manner in other Cases, where, after the Waters are discharged, we find the Head reclin'd to one Side; and these Measures are to be taken upon the first Approach of the Pains, when, with the friendly Concurrence of Nature, the Labour generally succeeds very well. But, if this Method cannot be speedily put in Practice, the Child, in order to prevent its Death, is always forthwith to be brought away by the Feet.

*La Motte* remarks, that in case a Child sinks low in the Pelvis, with the Forehead towards the Os Pubis, and the Face to the Passage, 'tis a very inconvenient Posture; but may be born so by dint of very strong Pains; but the Face of the Child is always very livid, by reason of the Blood-veins being compressed by the bending of the Neck; but it soon recovers the natural Colour. In such a Case, the Woman is always much in Pain, and has a very difficult Labour. A Linen Cloth, dip't in warm Wine or Brandy, is a proper Application to take off the Lividness of the Child's Face.

Fifthly, If the Child should present its Neck or Shoulder, with the Head reclined to one Side, as in *Fig. 8. Tab. LIV.* the Mother is to be laid on her Back, the Shoulder must be repressed, and the Head brought to its natural Posture. But, if this cannot be speedily done, the Feet are to be forthwith searched for.

When a Child presents the lower and back Part of the Neck with the superior Part of the Scapulæ, the Face bending towards the Breast, it must soon perish, because the Circulation cannot be carry'd on thro' the Neck, whilst bent in this manner. As soon, therefore, as it is perceiv'd, the Woman must be delivered; which is the more difficult to do, in proportion as the Child is sunk lower into the Passage, and engaged therein. *La Motte* says, he never saw more than one Instance, where the Child presented in this manner; and then a Quantity of black Waters were discharged from the Womb, caused by the Meconium, which, being discharged, colour'd the Waters where-with it was diluted. This Lady he very soon delivered, by passing his Hand along the Spine of the Back: When he had found the Feet, he joined them together, brought them out, and so finished the Delivery.

'Tis not an easy matter to distinguish the Point of the Shoulder, when it presents, from the Knee, the Hip, or the Head, till the Membranes are broke, and the Waters discharged. This Situation is not very common; the way to be sure of it is, to search for the Neck on one Side, and the Arm on the other, after the Membranes are broken; and, when the thing is certain, the Feet must be found, and the Child brought away by them. *La Motte* says, that tho' he seldom or never breaks the Membranes, yet in such a Case as this, when he cannot be certain what Part presents, he breaks the Membranes, and brings away the Child, as fast as he can. I suppose he means, after the Mouth of the Womb is sufficiently dilated. *La Motte*.

Sixthly, If the Child with its Face towards the Os Sacrum of the Mother, together with either of the Arms, enters the Vagina, one of the Hands is to be introduced into the Vagina in such a manner, as to pass under the Face to the lower Jaw, thence to the Humerus or other Arm; and thus let the whole Fœtus be drawn downwards by both Arms, a Practice which frequently succeeds.

Seventhly, If both Hands, together with the Head, present at the Mouth of the Womb, the Child is to be extracted by the Feet.

Eighthly, In every transverse Situation, the Child is to be brought away by the Feet. Thus, when the Back presents, the Hand must be introduced into the Womb before 'tis possible to be certain, that 'tis the Back, the Fingers not being long enough; and then 'tis easy to lay hold of the Feet, and bring the Child away, without withdrawing the Hand.

The Membranes containing the Waters must break, before the Hand is introduced.

*La Motte, Obs.* 328. gives a very extraordinary History of a Woman in Labour, where the Waters flow'd off, the Membranes being broke by very violent Pains, which immediately discontinued, as it often happens; but then in some little time they return again; but in this Case they never return'd at all; mean



mean time, the Mouth of the Womb contracted so very close, that the Midwife, and a Surgeon, that was sent for, both declared the Woman was not with Child; which was the more readily believed, because the Woman was very fat. The third Morning after the Membranes were broken, *La Motte* was called in, who, after asking about every Circumstance, in regard to her Breeding, Gestation, and Labour, both with respect to herself, and the Child, and after laying her upon her Back, and feeling an hard large Mass through the Integuments in the Womb, he pronounced her certainly with Child. He then laid her in a proper Situation, and, introducing his Hand, found the Mouth of the Womb closely shut, but very easy to be dilated: In the Womb, he found a very large Child presenting with the Back, which he brought away by the Feet, and the Woman did very well.

This Situation is the very worst that can happen to a Child, it being impossible it should be born with natural Pains; but is very easy for the Midwife, who may very readily bring the Feet.

Thus, also, when the Belly presents, the Fingers are long enough to reach it: As soon, therefore, as the Membranes are broken, the whole Hand must be introduced; and then 'tis easy to lay hold of the Feet, and bring the Child away. Without introducing the Hand, 'tis impossible to be certain, that 'tis the Belly which presents. *La Motte*.

The Belly is distinguished from the Back by its larger Extent, Softness, and by the Umbilical Cord.

The Woman should immediately be delivered, by bringing the Child by the Feet, tho' by the Coldness of, and want of Pulse in the Navel-string, it appears that the Child is dead.

If the Navel-string is return'd never so often, it will fall down again at the first Pain; because it can be return'd no farther than into the Vagina, the Head of the Child preventing its being return'd into the Womb.

It does no Good to wrap the Navel-string in warm Cloths, in order to maintain the Circulation.

There is less Danger of the Child, when the Navel-string falls down first, and the Child presents in any unnatural Situation, than when it presents right with the Head.

When the Navel-string hangs out, 'tis proper to keep the Woman in a warm Bed, and not to expose the Navel-string to the cool Air.

*La Motte* lays it down as a general Rule, that, when the Navel-string presents, let whatever Part come first, the Woman should be immediately delivered.

When the Navel-string is perceiv'd by the Pulse to lie before the Head of the Child before the Waters are flow'd off, *La Motte* advises to break the Membranes, and hasten Delivery; I suppose he must mean, by bringing away the Child by the Feet. But the Falling-down of the Navel-string cannot always be foreseen, before the Membranes break.

But in such Cases, if the Pains are strong and quick, and the Membranes seem ready to break, more Haste is necessary, than when the Pains are slow, and the Membranes not likely to break very soon.

The Instant the Membranes are broke, is the Time to introduce the Hand into the Womb, in order to bring away the Child by the Feet; for then the Woman is without Pains, and that facilitates the Operation. *La Motte*.

Ninthly, When the Navel-string falls down with the Head, the Mother is forthwith to be laid on her Back, and it is to be thrust back behind the Head. But if, either in this, or any other Posture, it cannot be retain'd in the Womb, but again slips down, which sometimes happens, the Child, in order to prevent its Death, is to be extracted by the Feet, which is easily done.

This is a very dangerous Case for the Child; for it almost always dies, especially if the Head presents first, and exactly fills up the Passage; for then the Circulation betwixt the Mother and Child is entirely obstructed.

In this Case Delivery must be hastened as much as possible, if the Child sinks very low immediately upon the breaking of the Membranes, and the Waters flowing off. But if, at the same time, the Pains are very strong and redoubled, the Expulsion of the Child must be left to Nature, because it would be very difficult, if not impossible, to turn the Child, and bring it by the Feet. But if the Child is not sunk very low, and the Intervals betwixt the Pains will admit of it, the Child must immediately, and without Delay, be brought away by the Feet.

If the Child seems to be dead, the best way to revive it, is to lay it before the Fire, to wash it with warm Wine, and spurt Wine into its Mouth.

Tenthly, if, whilst the Child presents in a natural Posture, the Navel-string is wrapt about the Neck, the Child is not, indeed, in such immediate Danger, as in the preceding Cases; but, as soon as this Circumstance is observed by the Midwife,

the Navel-string is forthwith to be remov'd, that the Fœtus may afterwards be extracted with the greater Freedom. But if this cannot be commodiously done for fear of its breaking, it is to be cautiously cut near the Neck, and by an Assistant compressed, till, after the Delivery, it may be duly tied.

In the eleventh Place, when there are Twins, which, among other Signs may be known, if, after one of the Infants is born, by examining the Secundines, we find another Child; or if, when its Waters are not as yet discharged, we perceive by the Touch another Membrane distended with Water; in this Case, the Navel-string of the Child already born is to be cut; and in the usual manner tied, near the Navel. Afterwards, when the Membranes of the other Child are broken, if it presents duly with its Head, its Passage is to be forwarded and assisted. But, if it should happen to present in an unnatural Posture, it is forthwith to be extracted by the Feet, if they can possibly be found. But, if its Waters are not as yet discharg'd, we are not to wait their spontaneous Evacuation, because this, as is often observed, would protract the Labour, and at once endanger the Mother, and the Child; for, if the Delivery should be delay'd, the Mouth of the Womb would again be so contracted, that the Operator could not have a proper Opportunity of affording any Relief to the Patient. In this Case 'tis, therefore, expedient forthwith to break the Membranes, which at this time may be done without any Danger, and, by this means, relieve the Mother, who, for the most part, is sufficiently weak, whilst the Passages remain duly dilated.

*La Motte* blames *Mauriceau* for pretending to give any sure Signs of Twins; for he says, that a great Quantity of Waters, or a very large Placenta, or both together, very often make the same Appearances as Twins, tho' the Child itself may happen to be very small.

When there are Twins, immediately after the Birth of the first, the Hand must be introduced into the Womb, the Membranes must be broke, and the second Child must be brought away by the Feet. *Chapman*.

This he seems to have learn'd from *La Motte*.

*La Motte* affirms, that an extraordinary Largeness of the Belly, swell'd Legs, Difficulty in Walking, and equal Motion on each Side the Belly, are not certain Signs of Twins; and that it is not true, that a Woman with Child of Twins comes some Days sooner than the natural Time; which is contrary to the Opinion of *Mauriceau*.

*La Motte* seems to regard more the Shape of the Belly, which is pointed forwards, when there is but one Child; but, when there are two, the fore Part of the Belly is more flat and broad, and is very full towards the Sides, and backwards.

When a Woman is with Child of Twins, if the Placenta is small, and the Quantity of Waters but little, 'tis not necessary the Woman should appear more big, or be more incommoded, during her Pregnancy, than if she is only with Child of one.

*La Motte* advises to open the Membranes of the second Child, and to bring it away by the Feet always; unless the Pains are very violent, and the Child well placed, so as to be born immediately after the first.

When the After-birth does not readily come away, the Midwife must not pull too hard, so as to break the Cord; but must introduce her Hand into the Womb, and follow the Cord to its Root; and then, if she finds another Child envelop'd in its Membranes, two Ligatures must be made upon the Cord, and it must be divided betwixt the Ligatures; then, as soon as the Child is separated from the Mother, the Hand must be introduced, the Membranes broke, and the Child brought away by the Feet.

Sometimes Twins have each a separate Placenta, and sometimes one serves both; and then it would be of the worst Consequence to pull at the String.

Our own Country Authors all agree in advising to pass the Hand, and examine the Contents of the Womb; and, if there is not a second Child, the Placenta, Clots of Blood, and all other Contents, are then readily brought away.

*La Motte* says, a Labour of two Children is more easy than that of one, because the Children are smaller when there are two.

#### WHEN THE THROAT PRESENTS.

This is a very uncommon Situation; but, when it happens, it renders a Labour very difficult. The Method of Delivery mentioned by *La Motte* in this Case is, to endeavour with one Hand to thrust back gently the Breast, and, at the same time, with the other, to bring the Head down to the Passage. This must be done betwixt the Pains; and, during the Pains, Care must be taken to keep the Breast from falling down again. He gives the History of two Cases, where he endeavour'd to do this; but succeeded only so far, as to bring the Face towards the Passage; and in this Posture both the Children were born, one dead, the other alive; that alive was extremely livid and swell'd,



swell'd, and was cur'd in twenty-four Hours by Linen Cloths dipt in warm Wine, or Brandy, and apply'd to the Face.

#### THE EAR PRESENTING.

One of the most inconvenient Situations a Child can present is, when the Side of the Head comes first to the Passage, which the Midwife readily distinguishes by feeling the Ear.

Midwives often are the Cause of this bad Situation, by not examining exactly the Posture of the Child, before 'tis sunk too low; for, when they perceive the Child's Head to come, they generally imagine all will do well in time, without assuring themselves what Part of the Head presents.

The Method here is, if possible, to turn the Child, and bring it away by the Feet.

But if this cannot be done, the Midwife must endeavour to place the Head right, by pushing it backwards with one Hand placed under the Ear, and drawing down the Vertex with the other. This must be attempted immediately after the End of the Pain; and 'tis observable, that the ensuing Pain will frequently spoil what has been done during the Interval.

'Tis very easy to bring the Child away by the Feet, immediately after the Waters are run off.

When the Head is so far placed right as to admit of it, an Hand must be introduced flat on each Side the Child's Head, and with these the Delivery must be promoted.

But, when all these Endeavours prove fruitless, the Head must be brought forwards enough to admit of opening it with a Knife, or Scissars; and then two of the Fingers must be introduced into the Incision, Part of the Brain be taken out, and the Child brought away by the Fingers hook'd within-side the Cranium. *La Motte.*

#### THE KNEES PRESENTING.

Before the Membranes break, the Knees may easily be mistaken for the Head, by reason of their Hardness, especially if they lie at a Distance; but, when the Waters are run off, they are easily distinguished from the Head, being much smaller; and, besides, one Knee generally comes first, and the other lies higher up in the Passage. In this Case, the Midwife must push it back a little, that she may come at the Feet more readily, which are very easy to be found, and by them the Child must be brought away.

When one Knee presents, the Child generally kneels, as it were, upon the Os Pubis, with the other; and this might cause some little Difficulty; the Knee first presenting should not be brought out alone, but should be push'd a little back, that both Feet, which are very easily found, may be join'd and brought out together. *La Motte.*

#### THE HIP PRESENTING.

There is no Part of a Child that more resembles the Head presenting at the Mouth of the Womb, than the Hip, by reason of its Roundness and Hardness; but it cannot sink so low as to be engaged in the Passage, unless the Body of the Child is pretty much bent, and forced down by very violent Pains. When there is any Reason to suspect, that this is the Case, not only the Fingers, but the whole Hand, if those are not long enough, must be introduced high enough to ascertain, whether it is the Hip that presents, or not; and, if it proves to be so, the Hip must be push'd back sufficiently to admit the Hand into the Womb; which must be introduced with as little Violence as is possible; and then sliding the Hand betwixt the Thighs, and afterwards betwixt the Legs, which serve as Guides, the Feet must be found and join'd. Then the Knees must be push'd towards the Child's Belly, provided the Parts are closely contracted about it, the Feet must be brought out, and the Woman deliver'd, as if the Feet had presented first.

This Situation exposes the Legs and Thighs of the Infant to be broke more than any other. *La Motte.*

#### OBLIQUE SITUATION OF THE WOMB.

When in the Beginning of the Labour, or at least immediately after the Waters are discharged, the Mouth of the Womb, and consequently the Crown of the Infant's Head, does not correspond directly to the Vagina, but either reclines to one Side, or backwards to the Os Sacrum, or towards the Bones of the Pubes, an highly dangerous Labour is to be dreaded; because, as has been already observed, this Circumstance proceeds from an oblique Situation of the Womb in the Abdomen; which the Operator may at first discover by the Touch, both from the Situation of the Mouth of the Womb turned to some Side; and from the Abdomen of the Mother, when the Womb, with the Child, is found to be highly prominent. As in this Case the Labour rarely succeeds without the Assistance of the Hands, unless the Obliquity of the Womb should happen to be very small, the Mother is immediately to be laid on her Back, either in a Bed, or on a proper Seat, with her But-

tocks somewhat higher than her Breast. After which we are, by introducing one of the Hands into the Vagina, to attempt the Reduction of the Mouth of the Womb, and consequently of the Infant's Head, to a natural Situation. This must be attempted in the following Manner: If the Head of the Child inclines towards the Right Os Ischium, and thus the Womb, together with the Buttocks and Feet of the Child, is perceived in the Left Hypochondrium, with one Hand in the Vagina, the Mouth of the Womb, together with the Head of the Child, is, during every Paroxysm of the Pains, to be pressed from the Right to the Left Ischium, whilst the Womb itself, with the rest of the Child, is, either by the Operator's other Hand, or that of an Assistant, apply'd to the Side of the Abdomen, gently pressed from the Left to the Right Hypochondrium. By these means it frequently happens, that the Head, sometimes sooner, and sometimes later, enters the Vagina in a strait Direction, and the Labour succeeds happily. If, on the contrary, the Mouth of the Womb, and Head of the Child, are inclined to the Left Os Ischium, the Reverse of the former Operation is, also, to be perform'd with the Hands; and from these we may easily judge what Measures are to be taken, when the Mouth of the Womb, and the Crown of the Infant's Head, incline to the Os Sacrum, which often happens, or are turn'd towards the Os Pubis; for when the Mouth of the Womb is with one Hand remov'd from the Os Sacrum, and with the other apply'd externally to the Abdomen above the Bones of the Pubes, pressed, till it corresponds directly to the Vagina, the Descent of the Child is afterwards, as in other Cases, to be promoted. But, with respect to all these Cases, 'tis to be observ'd, that if this Reduction of the Womb and Child cannot be soon accomplish'd, or if the Fœtus has remained long in such a Situation, lest that, or the Mother, should be destroy'd, especially if she is afflicted with an Hæmorrhage from the Womb, Convulsions, or fainting Fits, the Feet are forthwith to be searched for, and the Child by them is to be extracted; which Method is generally prefer'd to all others, as being at once more easy and expeditious.

But, the most difficult and dangerous Case is justly acknowledged to be that in which the Head of the Child is so far fallen down into the Vagina as to be seen; and at the same time is so firmly fixed there, that it can neither proceed farther, nor without the greatest Difficulty be extracted by means of the Hands; for this Posture, as well as the preceding, often deceives the most skilful, by its specious and natural Appearance at first; whilst, as we cannot often know whether the Child is dead or alive, both that and the Mother are in Danger of being destroy'd, unless it is speedily extracted either with the Hands, or with proper Instruments. The preternatural Bulk of the Head is commonly blam'd as the Cause of this difficult Labour; but generally without Reason, since it has already passed the narrow Mouth of the Womb: But the true Cause is rather to be ascribed to a bad Position of the Womb, and Shoulders of the Child, the latter of which touch on the Bones of the Pubes, and the former on the Spine of the Back, as *Hoorn* justly observes, whilst at the same time, in such a Posture, one of the Ears is generally turned upwards, and the other downwards. But because, in this Situation, the Shoulders are retain'd by the Bones of the Pelvis in such a manner, that they can neither come forwards spontaneously, nor without the greatest Difficulty be extracted by the Hands of the Midwife, there are two Methods of Procedure directed. The first is, with the two fore Fingers of each Hand gradually to press down the Head from the Bones of the Pubes towards the Intestinum Rectum, particularly at the Approach of Pains, in such a manner, that it may descend as near that and the Os Coccygis as is possible. After Attempts of this kind have been made for several times, the Head is to be drawn forwards with the four Fingers of both Hands placed round about it, whilst the Lips of the Pudenda are to be gradually dilated below it; by which means the Head is so disengaged, that the Hands may be applied behind the Ears or Occiput, and the Head extracted by them; which Practice, according to *Hoorn*, frequently succeeds very well. Sometimes, however, this Method does not succeed; in which Case the Arm, especially the inferior, is to be searched for, extracted, and by its means the rest of the Child freed from the Bones of the Pubes, and brought away, according to the Directions of *Hoorn*.

The second Method is, after with the Fingers pressing down the Head, as much as possible, towards the Intestinum Rectum, to anoint the Left Hand, all except the Thumb, with Oil, and to introduce it under the Head, so far into the Vagina, that the Extremities of the Fingers may be capable of grasping the Head like a Globe. Then with the Fingers of the Right Hand introduced in the superior Parts of the Vagina, under the Bones of the Pubes, the Head is to be laid hold of; and, if the Pains should be defective, we are to order the Mother to bear down as much



much as is possible, in order to promote the Delivery, whilst the Operator, in the mean time, draws both Sides of the Head with his Hands, and endeavours to put the Perinæum and Lips of the Pudenda behind it, which, according to *Hoorn*, is frequently attended with Success. When the Head is extracted, the Child is to be laid hold of about the Neck, and its Head drawn obliquely upwards, shaking it, at the same time, backwards and forwards, whilst with the other Hand introduced into the Womb, under the Neck, the Operator is to seek for the adjacent Arm, extract it, and, by drawing it obliquely, so to turn the Infant, as that it may lie flat on its Belly; after which 'tis so easily extracted, that it rather seems to come into the World spontaneously. But when, by none of these Measures, the Head can be extracted, which sometimes happens, as we learn not only from Experience, but, also, from the Observations of the most skillful Authors, such as *Mauriceau*, *Deventer*, *Hoorn*, and *La Motte*; and when the Strength of the Mother is gradually impair'd, or if Convulsions and Flooding should succeed, by which means her Life is endanger'd; in this Case there remains only one Remedy, which is, by Instruments to extract the Fœtus, though alive, with as little Caution as if it was dead. This may be done, first, by opening the Cranium, either with a Knife, or a Pair of Scissars, and extracting the Brain, either with the Fingers, or a Spoon. Thus, when the Cranium is collaps'd, it is more easily extracted either by the Hands, or by a large Forceps used for extracting the Stone of the Bladder; or, as *Deventer* advises, by a broad Fillet, passed carefully about the Neck; which Method, he says, proves successful, even when the Brain is not extracted from the Cranium. But if the Child cannot be brought away, when the Brain is taken from the Cranium, the Shoulders are to be freed from the Bones of the Pubes, and the Fœtus is to be extracted by them: Or,

*Secondly*, This End may be obtained by means of an Hook, like those represented in *Tab. LIV. Fig. 17. and 18.* instead of which, in Cases of absolute Necessity, *Hoorn* recommends a large Nail, bended in form of an Hook, with a Cord tied about its Top, that it may be the more forcibly pulled: Or,

*Thirdly*, The Head may be brought away by a particular Instrument, invented by *Mauriceau*, and commonly known by the Name of *Tire-tête*, to which, however, *Deventer*, *Hoorn*, and *Heister*, prefer Hooks, as more commodious. The same Measures are very nearly to be taken in other Cases, where the Fœtus cannot be extracted by the Assistance of the Hands, and especially in case of monstrous Children, such as those with two Heads, if the Life of the Mother is expos'd to Danger.

When the Woman has exceedingly violent and repeated Pains; when the Waters are flow'd off, and the Child, though well situated, is at a Distance, and advances but slowly; when the Child, being advanced betwixt the Os Sacrum and Pubis, low in the Vagina, sticks there, without retiring betwixt the Throes, though the Intervals are very long; there is then Room to apprehend, that the Largeness of the Head retards the Birth.

When the Case is thus, the Head of the Child, and Face is much swelled and livid; this is soon cured by a Linen Cloth dipt in warm Wine, and applied to the Part. *La Motte*.

*La Motte* very much blames the Use of Hooks. His Method of delivering a Woman, when the Child's Head sticks in the Passage, and cannot be protruded by the Pains, is thus, provided he is certain of the Child's being dead: He plunges a Pair of Scissars into the Head, about half the Length of the Scissars, and opens them; and by this means makes an Aperture large enough to take out Part of the Brain, and, if necessary, to take away some of the Bone; he then takes hold of the Bones of the Cranium, and brings away the Child.

He says, this Method may be practis'd without either the Woman, or any body present, knowing, that any Instrument was made use of.

But the very best way, in such a Case, is, if possible, to turn the Child, and bring it away by the Feet. However, this cannot always be done; for the Head is sometimes so lock'd betwixt the Bones of the Pelvis, that 'tis impossible to remove it.

This Author is of Opinion, that most difficult Labours of this kind are caused by the superior Part of the Os Sacrum, where it is articulated to the inferior Vertebra of the Loins, being bent too much inwards, and coming too near the Os Pubis, and by this means making the Passage too narrow for the Exclusion of the Child: Not but a Child of an extraordinary Size must have the same Effect, and cause a difficult Labour. But he infers from hence, that all those Fomentations, Liniments, and Embrocations, so much recommended by Authors, can be of no Service in making the Parts give way. And in this he seems to be very much in the right, because those Parts that are capable of Distention readily give way without them, except in very old Subjects; and I know of no Applications that will soften the Bones, and make them retire: So that the only Use of Ointments is, to lubricate the Passages, where they want it; and in Subjects pretty far advanced in Years.

*La Motte* makes a Distinction betwixt a Head that is too large to be forced into the Vagina, and be engaged in the Passage; and one that is small enough to descend into the Passage, but too large to be brought away by the Force of the Mother's Pains. In the former Case, the Feet are certainly more easily come at than in the latter.

The latter Case he calls being lock'd (*enclavée*) in the Passage.

When the Head is so far advanced, as to be able to make use of a Bistory without Hazard, that is, when it can be guided by the Eye, *La Motte* says, he cuts open the Head with one. But if not sunk so far into the Vagina, he advises to plunge a Pair of common Scissars into the Head, as directed before. But when the Top of the Head lies at the Extremity of the Vagina, and at a Distance, he then makes a Canula with a strong Paper, or Leather, and directs it to the Top of the Head, and then through it introduces a Knife, sharp only on one Side, which he plunges into the Head, and makes an Opening sufficient to admit of the Fingers, with which he empties the Brain, and then takes hold of the Head with the Fingers bent within-side the Skull, and so brings the Child away.

*La Motte* affirms, there is no Fear of injuring the Woman by the Bones of the Cranium, when a Part of them is obliged to be taken away, or come away by breaking off, during the Operation above-mentioned, because the Scalp separates from the Bone which comes away, and, staying behind, covers the Edges of the broken Bones of the Cranium, and defends the Parts of the Mother from being hurt.

This he says in Contradiction to what *Mauriceau* has said upon this Subject.

The Bones of the Cranium of some Children are so very hard, that they will not give way in the least, and accommodate themselves to the Size of the Passages, let the Pains be never so strong and forcing; and this Circumstance causes a very difficult Labour.

In this Case the Head of the Child lies very high, at the Extremity of the Vagina, and cannot enter it. The way to deliver the Woman, is to put back the Head, if possible, and bring away the Child by the Feet.

When the Child's Head has lain long compress'd betwixt the Bones of the Pelvis, it will sometimes be swell'd prodigiously, and so deform'd, that one would think it impossible it should ever come to itself again. It is generally cured pretty easily with Compresses dipt in warm Wine. But, sometimes, when it is very bad, an Abscess will be formed, and an Exfoliation sometimes ensues. In case of an Exfoliation, *La Motte* recommends Pledgets dipt in a Lotion made of equal Parts of Brandy, Lime-water, and Honey of Roses.

*La Motte*, in his Supplement, tells us of a very difficult Case, where the Labia Pudendi and Vagina were excessively hard and swell'd; the Child's Head lay very high, and was not yet sunk into the Vagina, but was incapable of being brought away by natural Pains.

The Child being certainly dead, after trying in vain to bring it away by the Feet, he plunged his Scissars into the Cranium, and, by opening the Branches, dilated the Aperture. He then introduced a straight Pair of Forceps, such as are used for extracting the Stone, one Branch within the Cranium, and the other without; and with these laid hold of the Os Parietale, and Os Occipitis; and by this means easily extracted the Child.

This Author recommends this way of delivering Women very strongly, and says, that, if one Pair of Forceps is not sufficient, two may be made use of, and one fix'd on each Side; and these Instruments he prefers to all others in parallel Cases.

Not only the Head, but the whole Body, also, is sometimes so large to cause a very great Difficulty in delivering a Woman, inasmuch that a Man is sometimes obliged, after the Head, and Part of the Body, is born, to pull with all his Force to disengage the Hips; a Force which would certainly separate the Head from the Body, if Hold was to be taken of it.

In such Cases, the Fingers, after the Head is born, are to be introduced into the Arm-pits, and by that means the Shoulders are to be extricated. Hold must then be taken of the Body, and the Child must be brought away by main Strength.

*La Motte* gives a Case of a Woman, *Obs. 315.* who had been in Labour, and the Waters had been run off three Days; the Child was dead, presented with the Head, but lay very high, and was not at all engag'd in the Bones of the Pelvis; he attempted to bring it away by the Feet, but could not come at them; then he open'd the Cranium with his Scissars, introduc'd his Fingers into the Aperture, and, breaking off several Pieces of the *Ossa Parietalia*, made it large enough to take out Part of the Brain; then laying hold of the Cranium, he attempted to bring away the Head, but, as soon as it was engag'd betwixt the Bones, he could make it advance no farther. He then, several times, try'd the Crochet, which as often broke out; at last he took a Blacksmith's Forceps, and, with them, laying hold of the



Os Occipitis, brought out the Head, but could not bring away the Child, which stuck at the Shoulders; he then introduc'd his Fingers into the Arm-pits, and pull'd himself, whilst the Midwife pull'd at the Head; and by this means he brought out the Shoulders, and, disengaging the Arms, brought the Child as far as the Hips, where it stuck, insomuch that he was forc'd to make the Midwife help him a second time, in order to bring the Child away. The Child was of an extraordinary Size; and the Woman did very well.

## DROPSICAL CHILDREN.

The Bellies and Heads of Children are sometimes dropsical. *La Motte* says, that no Instruments are necessary in this Case, but the Hands. If the Head comes first, he gets his Fingers under the Arm-pits as soon as he can come at them, and draws away the Child. If the Head by Accident separates, he brings away the Child by the Feet; as he does, when the Head is too large to be engag'd in the Bones of the Pelvis.

Others advise letting out the Waters by perforating the Belly.

## EXTRACTION OF A DEAD FOETUS.

As the Death of the Child in the Womb, especially if its Posture should happen to be unnatural, creates a very difficult Labour, the Assistance of the Hand is generally absolutely necessary for the Relief of the Mother. In this Case the Labour is difficult for many Reasons, however naturally the Child may present; for, on account of the Mother's Weakness, and a want of Motion in the Child, very faint and languid Pains are excited; besides this, the Efforts of the Infant, which considerably promote a natural Labour, are wanting; add to these, that the Infants sometimes retire, and the Womb closes upon them, when they could not be brought into the World at the due time, either on account of their unnatural Posture, an excessive Largeness of the Head, a bad Conformation of any other Parts, or a Narrowness of the Mouth of the Womb, and Bones of the Pelvis: But, in a Case of this Nature, we must carefully examine, whether the Infant is as yet alive, or dead, lest, if it should be alive, we should, by the rash or preposterous Use of Instruments, destroy, or, at least, greatly injure and lacerate it. The Necessity for such an Examination is so much the greater, because the Signs, commonly propos'd for judging of this important Circumstance, are generally fallacious and uncertain; especially, if the Infant presents the Arm-pit, the Buttocks, the Back, or one Side of the Head; for these Parts exhibit so faint and uncertain Signs of the Life of the Child in the Womb, that it may readily be taken for dead, whilst it is still alive, tho' often considerably weaken'd by the Tedioufness of the Labour.

The most material and important Signs of a Child being dead in the Womb, are the following.

First, If the Mother, for a considerable time feels, no Motion of the Foetus; but rather perceives a certain unwieldy Mass, which always falls to that Part, which happens to be reclin'd by her bending or turning her Body.

Secondly, If the Mother is seiz'd with frequent Shiverings, Faintings, and a Tenesmus, or frequent Inclination to going to Stool.

Thirdly, If her Breath smell strong and rank.

Fourthly, When any thing of an highly fetid and cadaverous Smell is discharg'd from the Womb.

Fifthly, If the Abdomen of the Mother is cold, 'tis a Sign, that the Child is dead.

Sixthly, According to *Viardalus* and *Goueyns*, 'tis an infallible Sign, that the Foetus is dead, if the Meconium, or the black Peces evacuated by new-born Infants, is discharg'd from the Pudenda of the Mother. But that this last-mentioned Circumstance has sometimes happen'd whilst the Infant was still alive, I myself, says *Heister*, have found from Experience, and others have frequently observ'd the same in the Course of their Practice. I frankly confess, says the above quoted Author, that, induced by this and other Signs, I myself formerly took an Infant for dead, and extract'd it as such, tho' I afterwards found it alive. The five Circumstances before enumerated, together with the following, are therefore, more certain and infallible Signs of a dead Child.

First, If the Navel-string, or Secundines protruded out of the Pudenda, are cold, and totally depriv'd of a Pulsation of the Arteries.

Secondly, When in an Arm or Foot hanging out, neither Pulsation, Heat, nor Motion of the Toes or Fingers are perceiv'd, but the Member is rather cold, livid, or black; and especially when the Cuticle, or Scarf-skin, is separated from the Skin, either spontaneously, or upon the Application of the Fingers to it.

Thirdly, In Infants presenting with the Head, and consequently in a natural Posture, 'tis a pretty sure Sign, that the Child is dead, if that Part of the Head, in which the Bone is wanting, and which by Physicians is call'd *Bregma*, *Ponticulus*, and *Fons Pularilis*, is so remarkably depressed and flaccid, that

the adjacent Bones of the Cranium are found sharp and moveable, and no Pulsation of the Arteries is felt in the Part; for, when the Child is still alive, this Part is hard, in some measure prominent, and a Pulsation of the Arteries is frequently perceived in it. But we are not to be rash in taking those Infants for dead, in whose Heads we perceive no Pulsation of the Arteries; for in weak Infants this Pulsation is often so faint and languid, that it is not perceptible by the Fingers. But 'tis a surer Sign of the Death of the Foetus, when the Cuticle is separated from the Skin of the Cranium. When the Child is infallibly dead, and the Waters discharged from the Womb, the Mother is to be reliev'd with all possible Expedition, lest the Putrefaction of the Foetus, which soon happens, should produce the worst of Consequences, such as violent Fevers, or even Death. But, if without the due Pains, and consequently before the legitimate Period of Birth, the Infant should happen to die, whilst, at the same time, the Waters are not discharged, we know from Experience, that the Infant may sometimes remain in the Womb for some Weeks, or even some Months, without any Danger of Putrefaction, especially if, in other respects, the State of the Mother's Health is good. Instances of this are given by most practical Authors. In this Case it seems more expedient to wait till Nature excites the due Pains, and by that means expels the Foetus, than by Medicines, or the Assistance of manual Operation, to bring it away either too soon, or in too violent and forcible a Manner.

If during the Pains the Infant should die, and is at the same time found in a natural Posture, we are not immediately, and before we are certain of its Death, to use Hooks, or other Instruments, for its Extraction. And because some Mothers are not easily prevail'd upon, immediately to admit the Hand of the Operator, corroborating Medicines, and such as excite the Pains, are to be exhibited. We are not in the mean time, especially when the Mother is weak, to neglect the Use of stimulating Clysters, since these generally contribute very powerfully, both to excite the due Pains, and expel the Foetus. But we are carefully to abstain from exhibiting those corroborative Medicines, and such as excite the Pains, in too large Quantities, lest, by their native Energy and Heat, they should produce Fevers, or dangerous and even mortal Hemorrhages. If, therefore, these Medicines should produce little or no Effect, we are, with all possible Expedition, in order to prevent the Putrefaction of the Foetus, to attempt its Extraction with the Hand, by which means the Pains are also excited. This Operation is one of the oldest practis'd in Surgery, as may be seen in *Hippocrates's* Book de Morb. Mulier, and in his Treatise de Extractione Foetus: See also *Fontanus's* Treatise de Foetus Extractione. That this Operation may succeed the more happily, the Mother must first of all, as when the Infant is alive, discharge her Urine. If this cannot be done, as it frequently cannot, on account of the Compression made on the Neck of the Bladder by the Head of the Infant, the Urine is to be brought away by a Catheter, us'd either for Men or Women, such as those exhibited in Tab. XLVIII. by Fig. 1. 2. 3. 4. and 5. When the Urine is discharg'd, the Mother is to be plac'd in a Chair contrived for that Purpose, and represented in Tab. LIV. Fig. 15. or upon a Bed, with her Buttocks somewhat higher than the rest of her Body. Then the Operator is with one, or, if possible, with both Hands, to lay hold of the Child's Head, in the most commodious manner he can, and gradually extract it in that manner; but, if he cannot extract it by the Head, he is to search for the Feet, and bring it away by them. He may, also, if he thinks proper, try *Deventer's* Method of applying a broad Roller about the Neck, or posterior Part of the Head. If by these means the Delivery should not succeed, it seems necessary to use proper Hooks every way smooth, and well-polish'd, such as those exhibited in Tab. LIV. Fig. 17. and 18. and even Fig. 21. which has a double Beak. These are with the greatest Caution to be fix'd in some commodious Part of the Infant's Head, such as the Eye, the Ear, the Mouth, and sometimes the Forehead and Occiput; after which, by drawing the Instrument cautiously downwards, the Foetus is to be extracted. If these, or other proper Hooks cannot be had, the Operation may be perform'd in the manner directed by *Hoorn*, with a large Nail bended in form of an Hook. But *Celsus*, who seems to have been well acquainted with this Operation, says, that it is not to be perform'd at all times; for, if it should be attempted when the Mouth of the Womb is so compress'd, as not to afford a due Passage for the Foetus, that Part of the Infant in which the Hook is fix'd, breaks, and its Point runs into the Mouth of the Womb, a Circumstance which must expose the Mother to imminent Danger of Death. When, therefore the Mouth of the Womb is compress'd, that is, when the Pains cease, we are to desist; but when it is dilated, or during the time of the Pains, we must draw gently. The Right Hand must be employ'd in drawing the Instrument, whilst the Left directs the Foetus, and that Part of the Hook which is in the Womb. If the Infant's Head is so large, or so obliquely situated, that it cannot, so long as 'tis entire, be brought thro' the Vagina, which frequently happens,



we must either with the Fingers, a Knife, or sharp Scissars, open some Part of the Cranium near the Bregma, and, extracting the Brain with the Fingers, so lessen the Volume of the Head, that it may be more expeditiously and commodiously extracted, either with one, or both Hands, in the manner already directed. *Mauriceau*, that celebrated and skilful Midwife, invented a particular Instrument, to which he gave the Name of *Tire-tête*, both for perforating and laying hold of the Head. By this Instrument, on which he bestows great Incisions, after making an Incision near the Bregma with a double-edg'd or common Knife, he says, he has often had great Success in extracting the Fœtus. But, as I before observ'd, this compound Instrument by no means seems absolutely necessary, because, after the Cranium is open'd, and the Brain extracted, the Instruments already directed, it properly made, the simple Hooks, for Instance, represented by Fig. 17, and 18. or a crooked Nail, or the Hand alone, are sufficient for extracting the Fœtus, as *Heister* informs us, he has often found by Experience.

If the dead Fœtus is found in an unnatural Posture, then, according to the Direction of *Celsus*, we are to lay hold of its Feet, and by them extract it, in the same manner as a living Child, which may be often done without any great Difficulty. But in this Attempt great Caution is to be us'd, especially if the Fœtus is already putrefied and corrupted, lest, by using too great Force or Haste in the Extraction, the Head should be torn from the Body, and left in the Womb; for, when the Head remains after the rest of the Fœtus is taken away, and is not forthwith extracted before the Mouth of the Womb closes, the Mother is, by that means, not only afflicted with the most terrible Symptoms, but, also, expos'd to an immediate and imminent Danger of losing her Life. For this Reason the Head, when left in the Womb, is to be extracted with all possible Expedition.

But, as the Head, in consequence of its round Figure and Slipperiness, cannot be commodiously secur'd by the Hand, it seems to be a proper Piece of Practice to introduce the Finger into the Mouth, or into the great Perforation of the O. Occipitis, and by that means to extract it. By this Expedient I myself, says *Heister*, have sometimes, without the Help of Instruments, happily, and without much Trouble, brought away the Heads of Infants left in the Womb. If the Fingers are not sufficient for this Purpose, a Linen Roller an Ell long, and about four Fingers broad, is to be introduc'd double into the Womb, so as to form a kind of Noose, in which the Head is to be included; and by that means it is often successfully extracted. Any of the above-mentioned Hooks, accommodated to this Purpose, may, also, be fix'd in the Mouth, the Orbit of the Eye, the Nostrils, the Perforation of the Occiput, or some other such Part, whilst, according to the Advice of *Celsus*, the Operator has previously pass'd his Left Hand under the Head, in order both to direct the Hook, and prevent the Injury which might otherwise be done to the Womb. Then the Head is, by the joint Assistance of the Hand and the Hook, to be carefully and cautiously extracted. But, if the Head should happen to be too large, it is with one Hand to be brought to the Mouth of the Womb, whilst with the other the Cranium is to be open'd, and the Brain extracted; after which 'tis cautiously to be taken away, either by the Hands alone, or with the Assistance of an Hook. The celebrated *Amandus*, an expert Practitioner in this way, in order to avoid the Injury which might possibly be done to the Womb by Hooks, for this purpose us'd a kind of Bag wove like a Net. This he pass'd over the Head, clos'd its Mouth with Cords, and by that means extracted the Head without any Danger. But this Bag is with great Difficulty apply'd to the Head, and the before-mention'd Methods succeed more easily, and with less Apparatus.

When a live Child is brought away by the Feet, and sticks at the Head, it sometimes also happens, that the Head is pull'd from the Body, and left behind in the Womb.

*La Motte* gives two Instances of this, in one of which he introduc'd his Left Hand into the Womb, and with it secur'd the Head, and with the Right Hand he slid in a Bistoury, cover'd with a Sheath open at both Ends, with which he made an Opening in the Head, large enough to introduce his Fingers, with which he took away Part of the Brain, and then, taking hold, drew out the Head.

In the other Case, the Mouth of the Womb contracting gave him a great deal of Trouble, by compressing his Hand, so that he could not use the Bistoury, as in the former Case. So he was forc'd to open the Cranium with the Fingers, to lay hold of the Jaw, the Orbit of the Eye, or any other Place he could hold; and so at last drew it out. *La Motte*.

#### WHEN THE HEAD IS SEPARATED, AND THE BODY LEFT IN THE WOMB.

When the Pains come on very quick, and redouble, as soon as ever the Head is born, the rest of the Body soon follows; inasmuch that little more is necessary, than to receive the Child, and keep it from falling.

But when the Pains are slow, with long Intervals betwixt, and the Head happens to be born just at the End of a Pain, it sometimes happens, that the rest of the Body stays behind, so that the Child sticks in that Situation.

*La Motte* will not allow, that this is caus'd by the Contraction of the Mouth of the Womb about the Child's Neck; but says 'tis owing either to the Largeness of the Shoulders, or the Shortness of the Navel-string.

In order to bring away the Child, a flat Hand must be introduc'd betwixt the Neck of the Child, and Mouth of the Womb, on each Side; by which means the latter will readily give way, and admit of introducing a Finger, or Fingers, on each Side into the Axillæ, which may serve by way of a blunt Hook to bring away the Child. But this is not always done without Difficulty, and sometimes the Midwife is oblig'd to bring down both Arms, before the Child can be brought away.

When the Shortness of the Navel-string causes the Obstacle, it must be cut; and then the Child is readily brought away.

If the Navel-string is render'd too short, by being twisted about the Child's Neck, it must be cut, by introducing a Pair of Probe-scissars along the Finger first introduc'd.

This is a dangerous Situation for the Child, which certainly dies, if it continues long in this constrain'd Posture, because of the Compression of the Navel-string.

In order to prevent this Accident, the Midwife should pull boldly the Child's Head, the Moment 'tis born, in order to bring the Body away at the very same time, and by the very same Pain; taking care not to pull too hard, for fear of dividing the Head from the Body.

It does not seem prudent to pull hard at the Head at any time, but just the Instant 'tis born, because the Fingers are readily introduc'd into the Axilla.

When the Head is divided from the Body, and the Body remains in the Womb, the Method of bringing away the Body when it is far advanc'd, is to slip the Fingers on each Side under the Amps, and so to draw the Child away; but if the Body lies at a Distance, the Method then is to bring it away by the Feet. *La Motte*.

Sometimes Infants, when dying during the Labour, thrust one of the Arms out of the Pudenda, in such a manner, that, by reason of the Shoulders sticking in the narrow Passage, it cannot again be replac'd in the Womb; nor indeed ought an Attempt of that kind to be made, especially if it has remain'd in that State for a considerable time. When this happens, and when the Signs of the Infant's Death are sufficiently manifest, that is, when the Arm is livid, black, and cold, when no Pulsation of the Arteries is felt in it, when the Fingers do not move, and when the Cuticle is separated from the Skin, we are first to try, whether, by reclining the Mother, and placing her in a commodious Posture, the Hand of the Operator cannot be introduc'd by the Infant's Arm into the Womb of the Mother, in such a manner, as to reach the Feet of the Child. If this can be done, which it often can, especially when the Labour has not been long, the Feet are forthwith to be search'd for, and the Fœtus is by them to be extracted, as if it was alive. But if, in consequence of a tumid State of the Infant's Arm, or a violent Constriction of the Mouth of the Womb, the Operator's Hand cannot be pass'd into the Womb, which, however, rarely happens, 'tis necessary either to twist the Arm out of its Articulation at the Scapula, or cautiously to cut it off. When the Surgeon intends to perform this Operation, 'tis highly expedient carefully to extend the Arm, to twist it about, and to hold it for a considerable time in that Position, before the Knife is apply'd, since, by this means, the Ligaments being partly distended, and partly broken, the Arm may be more accurately and safely cut off at the Shoulder-joint. But, lest the Mother should be wounded by the Knife, I generally, says *Heister*, use with Success one with a Button at the Point; take those exhibited in *Tab. XXVI.* by *Fig. 4.* and *5.* When the Arm is cut off, 'tis proper to try, whether the Hand cannot lay hold of the Feet; and, if it can, the Child is to be extracted by them.

If, on account of the Humerus sticking firmly in the Neck of the Womb, a transverse Situation of the Child, or a violent Constriction of the Womb, by means of which the Infant is so compress'd, as it were, into a Globe, that it cannot be directed by the Hands of the Operator, or if, in consequence of the Pains excited by introducing the Hand, which are sometimes so great, that the Mother cannot bear them, and a Rupture of the Womb, and the Death of the Patient, may be produced by the Application of a sufficiently considerable Force, in these Circumstances, it is not proper to pass the Hand so far into the Womb, as is frequently necessary for finding the Feet: 'Tis more prudent, therefore, in the Opinion of *Celsus*, cautiously to open the Breast and Abdomen of the Infant, either with the Fingers, a Pair of sharp Scissars, or an Hook, such as those represented in *Tab. LIV. Fig. 17.* and *18.* Then, extracting the Viscera and Intestines, we are to examine whether, the Body being lessen'd by this means, and the Buttocks coming nearer the Mouth of the Womb, the Feet cannot be



found; and, if they can, the Fœtus is to be extracted by them; a Practice which never fail'd to succeed with me, says *Heister*, as often as I attempted it. But if the Feet cannot be found, which frequently happens in consequence of a strong Constriction of the Uterus, then the Buttocks are, by the Hand pass'd under them, to be laid hold of; and, fixing an Hook in their superior Parts, they are thus to be extracted; for in this Case the Breast and Head follow, as it were, spontaneously, and with Ease; but it must be confess'd, that some Parts of the Body are frequently torn away, before the Delivery can be accomplish'd. But lest, in performing this Operation, the Womb should be wounded by the Hook, great Care is necessary in managing it. It, also, seems necessary so to sulcate or groove its Handle, that by the Touch only we may be able to judge how it ought to be directed in such a manner, that its Point may never be turn'd to the Womb, but always to the Fœtus. See *Tab. LIV. Fig. 19. Lett. a a a a*: Which Caution cannot be possibly observ'd in Hooks, whose Handles want such a Groove. Hence it has often happen'd, that Practitioners in this way have miserably lacerated both the Womb, and the Bladder. By a prudent Use of this Hook, whose Handle is groov'd, I myself, says *Heister*, have frequently brought dead Children into the World, with such Success, as to prevent all ill Consequences to the Mother. With respect to this Handle, 'tis to be observ'd, that because the Infant, especially when pretty large, is so firmly inclos'd in the Womb, that the Strength of one Hand is not sufficient to extract it, (for the other is suppos'd in the Womb, under the Fœtus) for this Reason a strong Fillet may be ty'd about its Part *b b*, which may be call'd its Neck. This Fillet, in order to assist the Extraction, is be pull'd by the Midwife, or an Assistant, whilst the Operator, in the mean time, at once directs and draws the Handle. These commodious Circumstances are entirely wanting in the common cylindrical or angulated Handles.

Nor for this Purpose is it in some Cases improper, to use pretty large Forceps, such as those employ'd in extracting the Stone, and represented in *Tab. XLIX.* These are by *Ryff*, an old German Surgeon, and *Slevogtius*, a celebrated Physician of *Jena*, prefer'd to Hooks, and all other Instruments, because by them the Womb is less subject to be lacerated, and the Operator's Hand less subject to be hurt. However, no less Care and Circumspection is requisite in the Use of the Forceps, than that of Hooks, lest, by the former, the Mouth, or some other Part, of the Womb should be laid hold of, drawn forwards, or miserably lacerated.

*Hoorn* invented and described a new and more expeditious Method of extracting a dead Child, with its Arm sticking firmly in the Vagina; for, when the Feet could not be reach'd, he, either by means of a Knife, or a proper Hook, separated the Neck, which in Fœtuses is very tender, from the rest of the Trunk; for by this means the Fœtus is either spontaneously discharg'd from the Uterus, or may by the Arms be easily extracted. After this the Head is to be extracted by itself, either by the Hand, or by some of the Expedients before-mention'd, if the Hand should be insufficient for that Purpose; I must here observe, that *Celsus* long ago directed the same Method to be taken, when the Fœtus, without a prolaps'd Arm, is situated almost transversely with its Neck doubled, and its Head reclin'd on the Body, perhaps as in *Tab. LIV. Fig. 8.* for, says he, in this Case the Neck must be cut, and both Parts of the Fœtus brought away separately.

Tho' I do not absolutely reject the Use of Instruments, says *Heister*, but employ them where Necessity calls for it, yet I must here apprise all Practitioners, that they are never to be us'd for extracting Fœtuses from the Womb, except in Cases of absolute Necessity; when, for Instance, there is no Hope left of the Possibility of performing the Operation by means of the Hands, or when Delays would expose the Mother to the Danger of losing her Life; for every one must readily perceive, that Operations of this Kind must be far more safely perform'd by the Hands, than by means of Instruments. Surgeons are, also, to be carefully exhorted, not to use Instruments of any Kind, till they are absolutely certain of the Death of the Child; for that Surgeon cannot be acquitted from the Charge of Imprudence, Negligence, and Cruelty, who extracts a Fœtus alive, but torn and mangled, at the same time, by his Instruments, unless particular Cases, and especially a great Weakness of the Mother, or a Dread of her Death, if the Fœtus remains longer in the Womb, should require the Operation; for, tho', in this Case, the Popish Casuists will not admit the Operation to be lawful, yet lest two, one of whom may be preserv'd, should be destroy'd together, the most learned Divines of the Reformed Churches have declar'd it lawful, for the Mother's Preservation, to extract the Fœtus by means of Instruments. The most skillful and sagacious Surgeons have, however, been touch'd with the most lively Compassion, when they have extracted a Child alive, or at least half-dead, which they themselves, the Mother, and the Assistants, took for dead. 'Tis not, for this Reason, to be wonder'd at, that *Celsus*, in the twenty-ninth Chapter of his seventh Book, should place the Art of extracting the Fœtus from the Womb, among those

which are most dangerous and difficult, and consequently call for the greatest Prudence and Circumspection. On the contrary, so long as the Child is alive, and the Mother at the same time robust and vigorous, Instruments are never to be us'd. The *Specula Uteri*, by some us'd to enlarge the Womb, and delineated by *Albucasis*, *Scultetus*, *Mauriceau*, and others, are not, in the Opinion of many celebrated modern Surgeons and Physicians, of any considerable Use. Besides, as the Womb is very easily injur'd, the Use of them must in some Cases be attended with the worst of Consequences.

The Signs of a Child's being dead in the Womb are very deceitful; for it sometimes happens, that a Woman goes her Time, and is deliver'd of a living Child, after having all the usual Signs of a dead Child, for many Weeks, and even Months. *La Motte* gives an Instance of this.

The Hardness, Swelling, Blackness, and Coldness of an Arm protruded, is not always a Sign of the Child's being dead; nor is it a Reason, why the Arm should be taken off. *La Motte*.

*La Motte* says, that there is no Dependence to be had upon a Woman's Breath smelling, as a Sign of the Fœtus being dead in the Womb, as some Authors affirm, because the Fœtus itself may be dead some time without stinking; for instance, whilst kept from the external Air by the Membranes.

A Child frequently makes a strong Effort, and moves with Violence, just before it dies; and after that the Mother feels it stir no more. *La Motte*.

An intolerable Smell and a Discharge of redish Serofities from the Womb, are the most certain Marks of a Child's being dead in the Womb. *La Motte*.

No great Regard is to be paid to those pretended Motions, which a Woman fancies she feels, of the Child about the time of Labour, after it has not been felt for a considerable time before, especially when the Cessation of the Motion in the Child has immediately follow'd some considerable Accident, as a Fall attended with a Hæmorrhage. *La Motte*.

THE METHOD OF DELIVERING A WOMAN, WHEN THE NECK OF THE WOMB IS PROTRUDED BEFORE THE HEAD OF THE CHILD.

It is possible that Women labouring under a Descent of the Womb, or *Prolapsus Uteri*, may become pregnant, and Instances of it have often occurred. These Patients, during their Pregnancy, are exempted from their Misfortune, because the Bottom of the Womb becoming larger, in proportion as the Infant grows, cannot slip through the external Orifice, as it did before; but, if they are no longer troubled with this Descent, they have still more Reason than other Women to apprehend the several Accidents generally accompanying both their Pregnancy and Labour.

During their Pregnancy, Women subject to this Misfortune ought to take better Care of themselves than others; they must, for Instance, neither use any violent Exercise, nor undertake Journeys in Coaches, or Waggon, which might shake them too violently; nor even walk too much on Foot; because the Womb being disposed to fall down, in consequence of its not being sufficiently retained by its Ligaments, these kinds of Exercises must, in the very Nature of the thing, contribute to augment their Disorder; so that these Women are just Exceptions from that general Rule, which enjoins Exercise for pregnant Women. Patients of this kind must not lie in Bed with their Heads raised high; neither must they use emollient Clysters, which would relax the Ligaments still more; nor those of an acrid and purgative kind, since these, by the Effects they produce, would oblige them to bear down. But if their Circumstances indicate the absolute Necessity of Clysters, they must only consist of simple Water.

During the Labour of Women subject to this Misfortune, the Neck of the Womb, protruded by the Efforts occasioned by the Pains of the Mother, falls out, and is forced into the external Orifice.

The Neck of the Womb, or Vagina, which resembles the Palate of an Ox, being thus fallen down, is full of large Wrinkles or Corrugations, which become gradually more and more tumid, by the Efforts the Infant makes with its Head, to force its Passage into the World.

In a Labour of this kind, we must neither suffer the Woman to walk, nor stand, which in natural Labour is frequently practised. On the contrary, she must be always kept in Bed, with her Body and Head on a Level with her Buttocks: Then the Operator, in the Interval between two Pains, is with his Hand to restore the Neck of the Womb to its natural Situation. And that it may not fall down again, on the Accession of the first Pain, he is to keep his Hand in the Vagina, in order to support the Weight of the Child, and hinder it from again protruding the Neck of the Womb.

In Labours of this kind, the Operator must neither use Butter nor Oil, which have a Tendency to relax the Parts still more. The Mother, also, must be advised, not to bear downwards during her Pains, in order to prevent the falling down of the Part again, which is occasioned by the smallest Impulse.



It is, therefore, absolutely necessary the Operator should keep his Hand in the Vagina, not only in order gradually to dilate the internal Orifice with the Ends of his Fingers, but, also, to retain the Mouth of the Womb, and keep it from falling down again. It must, indeed, be confessed, that this kind of Labour is longer, than that in which the Parts are lubricated, and the Mother is at Liberty to bear down; but at the same time it is equally certain, that, when these Precautions are taken, it is conducted with more Safety, and terminates more happily, than if they were neglected.

When the Child is brought into the World, great Circumspection must be used in bringing away the Secundines; we must not draw the Navel-string, and, consequently, the Placenta, to which it adheres, with too much Violence, lest the Bottom of the Womb, which is not strongly retained, in consequence of the Relaxation of its superior Ligaments, should follow the Placenta, and fall out of the external Orifice. If a Misfortune of this kind should happen, the Operator is immediately, with his shut Hand, to push it as far back as he possibly can; which will not only restore it to its natural Situation, but, also, by lengthening the Neck of the Womb, remove those Wrinkles and Corrugations, which the Impulses of the Child had made in it.

When, therefore, the Womb is fallen down, and inverted, it must with the greatest Expedition be restored to its natural Situation, in order to prevent the fatal Consequences which might be produced by Delay, and suffering the Fibres of the Womb to contract themselves, before the Attempt is made. We have no Reason, in such a Case, to be afraid of creating any uncommon Pain to the Mother, since the Passage of the Infant has already so dilated the Parts, that the Hand can find an easy Access; which it cannot possibly do, after a very inconsiderable Delay.

After a Labour of this kind, attended with so uneasy and perplexing a Train of Consequences, the Mother must be far more careful of her Situation, than if she had been delivered in a natural Way. For the first fifteen Days she is not to get out of Bed; nor to quit it entirely, till a Month is expired. Before she follows her usual Business, she is frequently to apply a Compress immersed in some astringent Wine to the Region of her Kidneys; and, for the greater Security, she must use a Pessary for some Months. *Dionis.* See PROLAPSUS UTERI.

*Mauriceau* is of Opinion, that a Prolapsus Uteri is most frequently owing to a difficult Labour; but in this *La Motte* contradicts him. For he affirms, that he never saw the Neck of the Womb thrust before the Head of the Child, in any one Labour he was concerned in: But, he says, the entire Descent and Inversion of the Womb must be caused by a difficult Labour, the broad Ligaments being broken by the Violence used by the Midwife.

*La Motte* says, the too great Humidity of the Part is the Cause of Prolapsus Uteri.

#### THE METHOD OF TREATING A WOMAN LABOURING UNDER A RUPTURE.

In an umbilical Rupture, as soon as ever the Intestine suffers a Strangulation, the Patient feels a Pain, like the Colic; and the Part grows hard, and enlarges, more or less; though every umbilical Rupture is not painful, none being so till it grows hard.

The same holds good with respect to an inguinal Rupture.

If, during Pregnancy, or at any other time, any of these Ruptures grow hard and painful, they must by all means be soften'd, in order to a Reduction. This is to be done, by applying a soft Napkin to the Part, folded in many Doubles, and soaked in new Milk, as hot as the Patient can bear it; and, when it is softened, the Part of the Intestine, which descended last, is to be reduced, Care being taken to act as gently as possible, for fear of an Inflammation and Gangrene, which this Part is very subject to, if handled too roughly.

If this will not answer the End proposed, *La Motte* recommends a Cataplasm of the Pulp of the Leaves and Roots of Mallows and Marshmallows, Mucilage of Linseed and Fenugreek, Flowers of Chamomile and Melilot, Bran of Wheat, and Meal of Rye, Oil of Chamomile and Lillies, as much as is sufficient.

If this is not sufficient to answer the End of mollifying, Baths are of great Service; and, if Baths do not succeed, the last Remedy is the Operation.

*La Motte* says, that, when a Rupture of either kind happens to be attended with these Circumstances of Hardness, and Pain, and Swelling during Labour, it is of very ill Consequences. But a simple Rupture, without Pain or Hardness, causes more Fear than Inconvenience.

All Parts of the Belly are subject to Ruptures, but the Navel, and Groin, more than the rest. When it happens in any other Part but the two last-mentioned, it is called a ventral Rupture.

An umbilical Rupture is generally less in Pregnancy, than at any other time, diminishes as the Belly enlarges, and seldom appears during Childbed, till the Woman rises again.

*La Motte* recommends a Plate of Steel to be worn upon the Part, with a kind of Girdle, made so as to be as tight, or as

loose, as the Patient pleases. But this is inconvenient, and not necessary, in the latter Months of Gestation.

*La Motte* seems to think these umbilical Ruptures of no manner of ill consequence in Labour, and to esteem them very little worth Notice: He thinks it even unnecessary to keep a Person's Hand upon them during the Pains, because, he says, let them be never so large, they will disappear, as soon as the Woman is laid in Bed, unless they suffer a Strangulation.

Children are very subject to an Exomphalos, because of the Laxity of the Part, but are easily cured by binding a Plate of Wax upon the Part, made with a Protuberance towards the Navel.

*La Motte* will not allow, that an Exomphalos is caused by tying the Navel-string too long.

When a Woman has a Bubonocoele, it is not less during Pregnancy, like an Exomphalos, but generally grows larger.

*La Motte* endeavours to reduce a Bubonocoele, before he delivers the Woman, by laying the Woman on her Back, with the Buttocks a little more elevated than the rest of the Body, and inclined a little to the Side opposite to the Rupture; then, as soon as a Pain is ended, he reduces the Intestine gently, and by degrees: Then he applies a warm Linen Cloth, made up into four Folds, to the Part; and makes a Woman keep an Hand flat upon it, to prevent a Descent during the Pains. And by these means a Woman is delivered with Ease.

A Bubonocoele is sometimes so excessively large, as to occupy not the Groin only, but, also, the Space betwixt the Thighs, which must embarrass a Midwife a good deal, unless the Intestine is reduced before Delivery. But sometimes it is so hard and tender, that the Woman cannot bear to have it handled enough to reduce it; and then the Woman must be delivered without reducing it.

*La Motte* gives a Case, where a Bubonocoele was attended with these Circumstances, and great Pain after Delivery: He gave the Patient fresh expressed Oil of sweet Almonds, with Syrup of Maidenhair, and a little Wine, in order to dissipate the Wind contained in the Intestine; and anointed her Belly with Oil of sweet Almonds, especially the Bubonocoele; and by these means, in a little time, the Tumor disappeared.

He advises, when breeding Women are troubled with these Bubonocoeles, to keep the Intestine always up; and if, when fallen down, it makes a Resistance, and cannot be reduced, he directs to soften it by means of a Cloth folded in many Doubles, dipped in Milk, and applied upon the Part. But, in case it is not possible to keep it always reduced, it must, at least, be kept soft, and in a Condition to be reduced.

Women with Child, especially when their Labour is at no great Distance, discharge sometimes a smaller, and sometimes a larger Quantity of Blood from the Pudenda; they are then said to labour under an Hæmorrhage of the Womb, or Flooding, in the common Phrase; which, as it happens in a State of Pregnancy, must be very different from the common menstrual Flux. In some Women, especially in the first Months, it proceeds from a Redundance of Blood, by which the Blood-vessels of the Vagina, or of the Womb itself, are opened, and pour forth a large Quantity of Blood, which is sometimes preternaturally hot. But this Disorder happens more generally in the last Months, and arises either from a total or partial Separation of the Placenta from the Womb; which may be produced either by an external Injury, such as a Fall, violent Exercise, a Blow, a Fright, and many other Causes; or by a Redundance or servid State of the Blood; or, as some of the Moderns maintain, from an Adhesion of the Placenta to the Mouth of the Womb, of which *Giffard* gives a remarkable History in *Case 224*. On this Occasion, towards the End of Pregnancy, the Placenta is torn from the Mouth of the Womb, in proportion as it dilates itself. The more, therefore, the Mouth of the Womb is dilated by the Pains, the more the Placenta is separated from it, and consequently the greater the Hæmorrhage; which is sometimes so violent as quickly to weaken the Mother, and even to endanger the Life of her and the Child, unless the latter is, by the Hands, extracted, before the former is too much weaken'd, of which fainting Fits are a certain Sign. *Hoorn, Brunner, and Stuart*, agree with *Giffard*, in acknowledging the Possibility of an Hæmorrhage from this Cause; and bring Instances to support their Sentiments.

An Hæmorrhage may be discovered, both by the Relation of the Patient, and the large Quantity of Blood discharged: But, whether this Blood comes only from the Vagina, or the Womb, is a Circumstance which cannot be known, except from a diligent Examination of the Mouth of the Womb by the Fingers; for that this Discharge of Blood proceeds only from the Vagina, may be known, when, upon passing the Fingers into it, the Mouth of the Womb is found to be closed, and the Hæmorrhage is only small: If, on the contrary, the Hæmorrhage is large, and the Mouth of the Womb dilated, or if, in it, not the Head of the Child, but a certain spongy Body, which is generally the Placenta, is perceived by the Fingers, we may conclude, that the Hæmorrhage proceeds from the Womb itself, in consequence either of a partial, or total Separation of the Placenta from it. And this Case is far more dangerous, than when the



the Hæmorrhage proceeds from the Vagina only. Besides, the Danger is increased in proportion to the Largeness of the Hæmorrhage; and, when Faintings happen, unless speedy Relief is afforded, the Lives both of the Mother and Fœtus are exposed to the most imminent Danger. When the Hands of a Woman in this Situation become cold, her Eyes dim, her Pulse weak, and when she is seized with a cold Sweat and Convulsions, which in this Disorder generally happen sooner or later, the Case is desperate, and the Death of the Patient at no great Distance. In this Case it is not prudent to attempt the Delivery, lest we should be thought to have killed a Patient, already destroyed by the Disorder.

If such an Hæmorrhage arises from the Redundance, Commotion, or preternatural Heat of the Blood, it may be most properly checked by Venesection in the Arm, a due Regimen, Rest both of Body and Mind, and the Exhibition of gentle Astringents, together with such Medicines as correct the exorbitant Heat of the Blood. But, if a very large and copious Hæmorrhage from the Womb itself should not yield to the Force of these Medicines, it generally proceeds from the Placenta being separated from the Womb; and, in this Case, it cannot be stopped, till the Child and Placenta are extracted by the Hand; because the open Blood-vessels, distended by the Fœtus, cannot constrict themselves, till it is removed. When, therefore, we find, that Medicines are of little Advantage, that the Hæmorrhage, instead of being lessened, becomes larger, and that the Mother is seized with Faintings, no means of Relief are left, except the Extraction of the Child by manual Operation, which may be performed in the following manner.

Let the Mother be laid on her Back, either on a Table, or Bed, with her Heels retracted, her Legs separated, and her Buttocks raised: After this the Operator is to pass his Hand, well anointed with Oil or Fat, into the Vagina, as far as the Mouth of the Womb, into which, if it is not already sufficiently dilated, as it sometimes is not, he is with great Caution to introduce one, then two, then the rest of his Fingers, and thus gradually his whole Hand, into the Womb. It is scarce possible to believe with what Difficulty this is sometimes done, especially when the Placenta, which frequently happens in Cases of this Nature, is situated about the Mouth of the Womb, and has a great Part of it still adhering to it: This, however, is to be attempted with the greatest Care and Diligence. And the Placenta, when it adheres but slightly, is first with the Fingers, and then with the Hand, to be gently removed so far as is necessary for introducing the whole Hand, taking care that, in this Attempt, a greater Separation of the Placenta from the Womb may not be made, than is absolutely requisite for the Introduction of the Hand, since by these means a greater Hæmorrhage, which might possibly prove mortal, might be excited. When the Placenta is disengaged, and lodged about the Mouth of the Womb, in such a manner, as to prevent the Operator's having Access to the Child, *Hoorn* orders it to be first extracted, and then the Child. When the Placenta adheres so strongly to the Mouth of the Womb, that the Operator cannot introduce his Hand, it is to be broken with the Fingers, till the Hand can have free Access; for, as in Cases of this Nature it is dangerous to wait too long, or commit the Business to Nature, such a Practice is by no means to be recommended. Introducing the Hand, therefore, into the Womb, the Feet of the Infant, though as yet not entirely mature, must be immediately searched for, by which, for the Preservation of the Mother, it is to be extracted. But if it should happen, as it often does, that the Membranes are not broken, they are either to be pierced with the Nails of the Fingers, or, if they are very strong, with an Hook, that the Feet may be more easily found, which they generally are without any great Trouble, because in this Case they, for the most part, lie pretty near the Mouth of the Womb. But if the Membranes are broken, as they sometimes are, and which may be known from the bare or uncovered Parts of the Infant, there is no Occasion for breaking them, but the Fœtus is forthwith to be laid hold of by the Feet, and by them extracted. This is generally done with the greater Ease, if the Feet are directly opposite to the Mouth of the Womb. But this Operation is far more difficult, when the Child is turned on its Head, and ready, as it were, to be brought into the World; because, in this Case, the slippery Head cannot be firmly enough laid hold of; nor can the Feet, because they are turned upwards, be so easily found; they are, however, carefully to be searched for, and the Fœtus is by them to be extracted. When the Child is thus brought into the World, the Secundines generally soon follow it spontaneously; but, if they should happen as yet to adhere to the Womb, they are with the Hand to be gently disengaged, and extracted. When the Secundines are thus extracted, and the constricted Blood evacuated by the Hand, in order to prevent After-pains, the Hæmorrhage gradually ceases, till at last after due Rest, and a careful Use of proper internal and external Medicines, it generally disappears entirely, because the Womb now contracts itself, and with it the Blood-vessels, which were before open. In order to restore at once the Blood and Strength of the Patient, we are to take all those Measures generally prescribed after large and excessive Hæmorrhages. Thus, for In-

stance, hot Sorbitions are frequently to be exhibited; such as Broths, warm Milk, Emulsions of Almonds, Jellies, or corroborating Draughts, prepared of hot Ale, and proper Waters. I must here, also, observe, that, unless Patients of this Kind die within six Hours, they generally recover, because the Hæmorrhage ceases, and the Patient receives fresh Supplies of Strength from the Exhibition of easily digested Aliments: Whereas those who are destroyed by excessive Hæmorrhages, and their consequent Weakness, may have their Deaths ascribed to too late an Extraction of the Fœtus, which, as we have already observed, ought not to be delayed too long, that is, till the Mother is seized with Faintings. I myself, says *Heister*, have known several Women, who by refusing to submit to this Operation, or by submitting to it when it was too late, have been cut off in the Flower of their Age. The Reader who desires Instances of this Kind, may consult *Mauriceau*, *La Motte*, *Giffard*, and *Chapman-Heister*.

Maids are subject to considerable Hæmorrhages, as well as married Women, and sometimes very young, as at nine Years old, or sooner.

In such Cases Bleeding, Purging, and a cooling Regimen, are proper. Or, if the Hæmorrhage is violent, half a Dram of Roch-alum, a Dram of Dragons-blood, with some Conserve of Roses, is an excellent Remedy. *La Motte*.

Melt in a Crucible any Quantity of Roch-alum: Add to it an equal Quantity of Dragons-blood: Then let it be powdered.

The Dose of this, in violent uterine Hæmorrhages of any kind, is half a Dram every Half-hour.

Alum was first used in Hæmorrhages of the female Sex by *Scribonius Largus*. *Helvetius* added to it Dragons-blood.

The above-mentioned Preparation of it was *Pitcairn's*, and what he recommended.

This is an excellent Remedy in all uterine Hæmorrhages, whether of the Menes in too great Abundance; or Floodings of Women with Child. *Edinburgh Medical Essays*.

*Mauriceau* thinks a Virgin can scarce have an Hæmorrhage, attended with a Discharge of Clots of Blood: But *La Motte* is of quite another Opinion. It is difficult to determine which is right.

Women are subject to these Hæmorrhages at any time of their Pregnancy, during their Labour, or afterwards. *La Motte*.

Hæmorrhages, if considerable, are almost always followed with the Expulsion of the Fœtus.

The most common Causes of Floodings are, Falls, Blows, Frights, false Steps, Efforts in lifting any thing heavy, extending too much the Legs or Arms, pressing the Belly against something hard, Grief, Anger, and any violent Passions of the Mind. *La Motte*.

When Floodings happen with any Violence, the only Cure is to deliver the Women immediately, in whatever time of Pregnancy it happens.

If the Woman is gone less than five Months, it is no matter what Part of the Child comes first; but, after that Time, the Membranes must be broke, and the Child fetched by the Feet.

Women are sometimes so weakened by Flooding, that they are a long time before they recover their Strength, and that not without the Help of a good Regimen, and long Rest. Some are afterwards troubled for a long time with a violent Head-ach, and never after recover a fresh Colour.

However, we are not to be too hasty in delivering a Woman as soon as any Blood appears; for some have a small Loss of it, without any Disadvantage; but, when it grows excessive, and the Woman begins to be weak, then is the time to hasten Delivery.

Flooding sometimes proceeds from the Blood-vessels at the Bottom of the Vagina, or external Part of the Mouth of the Womb. *La Motte*.

*La Motte* gives the History of a Woman, who, being gone about six Weeks with Child, was seized with a violent Flooding; upon which he introduced one Finger into the Mouth of the Womb, which was all he could do; and, thrusting it as far as he could into the Womb, he rounded a little Body he found therein, which was like an Hen's Egg, without a Shell, and detached it from the Womb, and then brought it whole; which, he says, should always be done, if possible, for fear the Membranes, at that time so very little, should not be readily found, in case they were broken, and their Contents gone off; and, then, if they lay behind, the Flooding would not cease.

In case of a Flooding, when a Woman is far advanced in her Pregnancy, if her Pains are strong and redoubled, and the Child so far sunk in the Passage, as to hinder the Introduction of the Hand into the Womb, in order to bring away the Child by the Feet, then the Expulsion of the Fœtus must be left to Nature.

It is not always possible to deliver a Woman of an abortive Fœtus, when she is seized with Flooding. *La Motte*.

Sometimes the Mouth of the Womb is too rigid and strong, to be opened sufficiently by the Fingers. And in this Case *La Motte*



*Motte* affirms, that all the emollient Applications so much recommended are of no manner of Service, Rest and Patience being the best Remedies; for after Rest it will often be dilated of its own Accord.

Floodings, which happen to Women in Labour at their full Term, are of no great Consequence, if the Labour is very quick, and the Discharge not very considerable; but if the Labour is slow, and the Flooding violent, both the Mother and Child are in great Danger, especially if the Child presents right, and is advanced far into the Passage. But if the Child presents wrong, and is not far advanced, it is less dangerous, provided the Hand can be introduced, and the Child brought away by the Feet; which must, upon these Occasions, always be done. Or, if the Child present right, the Head must be put back, and the Child must be brought away by the Feet, if possible.

In case of Flooding in a Labour of the full Term, the general Rule is, to hasten Delivery as much as possible.

The weaker the Labour-pains, the more easy it is to introduce the Hand, and bring the Child away by the Feet.

Floodings are not always caused by a Separation of the Placenta from the Womb, but sometimes from a Rupture of some of the Vessels, which form the Navel-string. *La Motte*.

There is a sort of Hæmorrhage which Women of all Ages are subject to, whether married or unmarried, which it is very difficult to distinguish from that which happens during Pregnancy; because it is attended with all those Symptoms that accompany Pregnancy, without excepting one, as forcing Pains like those of Labour, Vomiting, &c. inasmuch that *La Motte* says, he has often been called to deliver Women in this Condition, who have thought themselves with Child; and whom he cured by a cooling Regimen, forbidding the Use of any spirituous Liquors, and advising Rest.

This is caused by a long Suppression of the Menfes.

Young married Women generally breed soon after an Hæmorrhage of this kind.

In this Case the Belly grows less for the first two or three Months, as in true Pregnancy; and at the time of the Hæmorrhage, when the Woman has the Symptoms of Labour, no Waters are discharged, contrary to what happens in a Miscarriage, or true Labour at the full Period. *La Motte*.

An Hæmorrhage from the Nose, during Pregnancy, very often is the Cause of the Child's Death, if it proves excessive.

*La Motte* advises, in this Case, Rest, lying upon the Bed, with the Head a little elevated, taking care to excite no extraordinary Heat by too much Covering. He, also, gives the Woman cold Water to drink, and cautions particularly against giving any thing spirituous, and against blowing the Nose.

The following Decoction is much recommended by *Hamilton*, in an immoderate Flux of the Menfes; especially when it is not caused by a Portion of the Placenta left behind after a natural Birth, or Miscarriage.

Take seven Orange-rinds, boil them in three Pints of Spring-water, till the Water is reduced to two Pints; and let the Liquor, when strained off, be sweeten'd with white Sugar. The Dose is ten Spoonfuls, three or four times a Day.

*Riverius*, *Lib. 15. Cap. 3.* quotes a Medicine much like this, from *Ludovicus Septalius's Animadvers Medic. Art. 144.* which the last-mention'd Author recommends as almost infallible, as follows:

Take three Orange-rinds, as yet somewhat green; boil them in seven Pints of Spring-water to the Consumption of two Parts of the Liquor; of which eight or ten Ounces may be drank every Morning.

*Septalius* says farther, that, if you would make the Medicine yet more effectual, add, at the End of the Boiling, one Handful of Mouse-ear: Or else make the Decoction in a Gallon of Water, and boil to the Consumption of two Thirds; then quench frequently in the strained Liquor an Iron heated red-hot. *Riverius*.

This seems very proper to be given with the styptic Powder, as above described.

*La Motte* says, that, after any great Loss of Blood, it is very common for Women to be troubled for a long time with a violent Head-ach, and a troublesome Buzzing in the Ears.

Women generally lose a large Quantity of Blood, when the Child is born; which ought not to be esteem'd a Flooding, and is attended with no Danger.

When the Navel-string is cut, the Part remaining with the Placenta should be tied up, as well as that remaining with the Child; otherwise a great Quantity of Blood will be discharged from it, which may prove fatal to the Mother.

Care must be taken, that all the Membranes are brought away with the Placenta.

When a redish Serosity, inclining to black, is discharged from the Womb, accompanied with violent After-pains, it is a certain Sign, that a Portion of the Placenta, or Membranes, remain in the Womb; and then a Finger or two, or more, must be intro-

duced, as it seems necessary, and the remaining Part must be brought away. *La Motte*.

Fatal Hæmorrhages will sometimes ensue, after a Woman has been safely deliver'd, and no Part of the Placenta, or Membrane, is left behind. In this Case the Woman's Voice sinks by little and little; she gapes, grows pale, loses her Pulse, and finds herself weak.

*La Motte's* Method of Cure is as follows: He rubs the Woman's Hands and Face with Vinegar, and Water, or Oxycrate; and applies doubled Linen Cloths dipt in the same to the Belly, and Region of the Kidneys. Mean time he keeps her as cool as is possible, and suffers her to be covered with very few Cloths: He gives her Broth without any Salt, but in very small Quantities at a time, with a little Water, and some Wine, in order to abate the Thirst, and to be of some little Refreshment. But he cautions particularly against giving any thing spirituous.

If the Woman has an Inclination to sleep, he keeps her awake, till the Hæmorrhage in some measure ceases.

In *Obs. 402.* he gives the History of a Woman, who, immediately after the Extraction of the Placenta, was suddenly seized with so violent an Hæmorrhage, that she remained, in Appearance, without either Pulse or Respiration: But he brought her to herself, and at last cured her, by throwing great Quantities of Water upon her Face, Hands, into her Mouth, and almost all over her, and by applying Linen dipt in the same. He then took away every thing that might keep her warm, and laid her upon Straw only.

*Chapman* has probably taken this Method from *La Motte*; he says, as follows: "When the Discharge is very great, it requires the most immediate Assistance; or the unhappy Woman, now just deliver'd, freed from her Pains and Tears, and flush'd, as it were, with new Life, will be infallibly lost. In this Case I never bleed, but lay the Patient very cool, almost naked, and cover her Body with Cloths dipped in Water, or Vinegar and Water mixt. This must be done when the Flux is extremely violent, and without which the Woman's Life would be lost in a few Minutes: It at once constringes and restores the Tones of the Fibres and Vessels of the Womb, at the same time that it abates the too violent Motion of the over-heated Blood. I beg Leave to recommend this Method as what I am confident has saved the Lives of great Numbers, in the Course of my Practice."

The same Author, *Case 12.* after having given the History of a Delivery, goes on in this manner.

"This Lady was of a plethoric Habit, and, having been much heated by a long Labour, and great Pain, together with several warm and cardiac Medicines, (which, as the Posture of the Child was right, were given her, in hopes that Nature might have done the Work herself) in about an Hour after, when we thought all was well, and I just about to take my Leave, she fell into the most violent Flooding I ever saw. I was obliged immediately to cover her Body with Cloths dipt in Oxycrate, changing them as they grew warm, and this for above half an Hour together; by which means the Flux at first was a little abated, and at length stopped, whilst we gave her several Draughts of cool and acid Liquors to drink. She was so excessively cold, and her Pulse so low, from the vast Loss of Blood, that we thought she was dying. But, forcing down some warm Sorbitions, as well as cordial Medicines, she was quickly able to bear warming, without a Return of the Hæmorrhage: By this Method she soon revived, and is still living."

*Hippocrates* recommends an Infusion of the Leaves of Vitex, or Agnus Castus, in an uterine Hæmorrhage, made in Black-wine. *De Natura Muliebri.*

#### LACERATION OF THE PERINEUM.

That the Perineum, or fleshy Partition between the Pudenda and the Anus, may be lacerated, is a Circumstance well known to every one who is in the least conversant in Surgery. But this Misfortune is principally incident to Women subjected to a difficult Labour, in consequence of the Largeness of the Child, its monstrous and unnatural Conformation, or its being doubled, as it were, and presenting with the Buttocks. In order, therefore, to prevent the many terrible Consequences which may possibly be produced by a Misfortune of this kind, the following Measures are to be taken with all Expedition: First of all, the Wound is to be washed and cleansed with warm Wine, or Brine: Then it is to be carefully anointed with some vulnerary Balsam, or, which is still better, the Powder of Sarcocolla, or Mastich, may be sprinkled upon it. After this, if the Wound should happen to be but small, its Lips are to be brought into Contact, by means of adhesive Plaisters: But if, in consequence of the Largeness of the Wound, these should not be sufficient for that Purpose, the knotted Suture, usual in other deep Wounds, is to be made with a crooked Needle, and a double-waxed Thread. After this the Wound is to be treated in the same manner with other Wounds in a like Situation. Only, in this Case, it is highly expedient, that the Woman should remain in Bed, with her Thighs close together, and have her Wound cleansed twice or thrice each Day, till it is healed. According to the eighty-second Observation of

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*Solingen,*



*Solingen*, Wounds of this kind, when neglected at the Beginning, often become incurable, and are accompanied with a very troublesome Ulcer.

Whilst the Patient is under Cure, she should never be suffer'd to have a costive Stool, because it would be likely to dissolve the Union of the Parts, brought into mutual Contact by adhesive Plaisters; or to tear out the Stitches, if a Suture has been made.

#### CONTUSIONS OF THE PUDENDA.

It often happens after a very difficult Labour, that the Passages are so torn and confused, that a Mortification, and Loss of Substance, ensue, more or less: And then, if Care is not taken to keep the Sides from uniting together, the Passage will be entirely stopped up, or in part. If entirely, there will be no room for the Discharge of the menstrual Flux; and then the Woman may be seized afterwards with Convulsions, attended with great Pain in the lower Parts of the Belly. If in part, the Woman may be again with Child; and then this Union may render the Labour extremely difficult, or Delivery impossible.

*La Motte* introduces the middle Finger into the Anus, and a Catheter into the Bladder; and cuts an Opening, as near as he can, betwixt them.

*La Motte*, *Obs.* 419. gives the History of a young Girl of Seventeen, who was seized with a violent Pain in the Loins, and lower Part of the Belly, which the third Day were communicated to the Vagina, and would not yield to Baths, Clysters, Bleeding in the Arm and Foot. Upon examining the Vagina, he found the Carunculae Myrtiformes were wanting; and about two Fingers-breadth within the Vagina he found a Membrane distended and full, much like that which contains the Waters of a very little Child. As he could not break it with his Fingers, he was forced to cut it with a Lancet; upon which a Quantity of very black Blood was discharged without any Smell, and the Girl was immediately eased. She was afterwards married, and has since had many Children.

*La Motte* says, a Surgeon of his Acquaintance had Occasion to perform the same Operation.

*Cooper* gives us a parallel Instance.

*La Motte*, *Obs.* 453. tells us of a Woman, whose Vagina was entirely closed up, as well as the urinary Passages, by a spongy Flesh, which join'd the Sides together, insomuch that she was an Hour in making Water, and that with great Pain. This was caused by a Contusion which the Woman received in a Labour, from the too rough and frequent Handling of the Midwife. Upon Inspection he found there was no Passage for the Urine, but that it transuded through the spongy Flesh above-mentioned. This Woman he cured by an Incision, and dressing the Wounds with Pledgers of Lint dipt in Brandy.

When the Parts are so confused, as to endanger a Mortification, Fomentations, and antiseptic Topics, seem necessary.

In order to prevent an Union of the Sides, proper Dossils of Lint kept betwixt the Parts seem the best Precaution.

Sometimes there is so great a Loss of Substance, on account of a Mortification of the Parts confused, by the Head of the Child sticking a long time in the Passage, that the Woman suffers an involuntary Discharge of the Urine and Faeces for ever after. And sometimes there is a Mortification, even before the Woman is deliver'd; which manifests itself by an intolerable Stench.

*La Motte* recommends detersive Fomentations, and Injections.

In natural or unnatural Labours, more particularly the latter, the Vagina and external Parts are subject to Contusions, Dilacerations, Inflammations, Impostumes, and Mortifications; and to these Accidents Women that have the Lips of the Pudenda thick and hard, are more subject, than those who have them thin and tender.

When the Bones which form the Head of the Child are very hard, the Lips of the Pudenda large and thick, and the Labour very quick, a Woman is most liable to these Misfortunes, because there is no time for a gradual Dilatation of the Parts, and the Bones of the Head cannot yield so as to accommodate themselves to the Passages.

When the Child comes with the Breech first, or if the Head lies a long while in the Passages, these Misfortunes are still more to be apprehended. *La Motte*.

In case of Contusion *La Motte* recommends only Embrocations with Wine warmed with a little Chervil in it.

This Remedy, he says, is the best of all others, and the only one necessary; and finds fault with all those recommended by *Pen* and *Mauriceau*, as useless, and even pernicious.

In case of a Laceration of the Perinaeum, and Vagina, the same Author advises a Reunion, by a few Stitches, whilst the Wound is recent; for, after the Sides thereof are healed, and grown hard, they will not unite without being made raw again.

Contusions, Inflammations, and even Mortifications, are often caused by a Midwife's too rudely handling the Parts; of which *La Motte* gives an Instance, *Obs.* 408. where the Parts were so roughly handled, that an Inflammation came on, attended with violent Pain, which was succeeded by a Mortification; insomuch

that he was obliged to scarify, not only the external Parts, but even high up in the Vagina, and to wash the Part with Sea-water, and then to use a Lotion made with Birthwort, Myrrh, Aloes, and Sugar, in White-wine, with an Addition of a little Brandy; mean time the Lochia never ceased, and the Patient had but very little Fever, and that only for a Day or two: By these means she recovered, and had many Children afterwards, without any of the like Accidents.

*La Motte* says, Oil does Prejudice in those Excoriations which happen during Delivery, and are felt immediately after it. His Method is, to bathe the Parts with warm Milk, Barley-water, and a Decoction of Liquorice and Chervil, and afterwards to embrocate with Wine and Chervil.

*La Motte*, *Cas.* 452. tells us of a Woman who had the Lips of her Pudenda and Womb excessively hard, and swelled, occasion'd by the Midwife's frequent handling the Parts: After the Woman was deliver'd, he injected into the Vagina an Infusion of a very small Quantity of Birthwort, Myrrh, and Aloes, in White-wine; and applied a Compress to the Lips, dipped in the same: By these means a Separation of the confused Parts was procured, which fell off; mean time he took care to keep the Parts asunder, for fear of a Reunion.

#### LACERATION OF THE WOMB.

If violent and strong Labour-pains cease all on a sudden, and Vomiting succeeds, a Laceration of the Womb is to be apprehended.

*La Motte* gives two Instances of Women, who had the Womb burst, and the Child extended lengthways, with the Feet towards the Diaphragm of the Mother, out of the Womb. Both these Children presented with the Head; and there seem'd to be no other Cause of this Laceration, but the Violence of the Pains, and Force of the Child.

The Symptoms were, extreme Weakness, perpetual Vomiting, the Belly hard, distended, and painful, a very small Pulse, and an entire Cessation of Pains or Throes.

The Placenta was torn through in both these Cases; and, in the first Case, the Woman felt a violent Motion of the Child, when the Laceration was made.

*La Motte* says, that an Hiccough, and cold Sweats, are generally Attendants upon such a Laceration.

This Case is always fatal.

#### INFLAMMATION OF THE WOMB.

In inflammatory Pains of the Belly, *La Motte* directs an anodyne Clyster, and emollient Fomentations of new Milk, applied by means of a fourfold Napkin dipped therein, whilst warm, and renewed from time to time, as it cools.

The usual Causes of an Inflammation of the Womb are, long and difficult Labour, the Adhesion or bad Consistence of the Placenta, Falls, Blows, and Swathing the Womb too tight: These Inflammations usually cause a total, or partial, Suppression of the Lochia, a Retention of Urine, frequent Inclinations to make Water, Diarrhoea, Vomiting, Oppression, Fever, Deliriums, Convulsions, and Death.

An Inflammation of the Womb is very easily known by a great Pain in the lower Part of the Belly, which makes it very difficult for the Woman to lie in any other Situation than upon her Back; and, if she turns never so little on either Side, she feels an painful and heavy Mass fall on that Side, and at the same time an excessive Pain in the Loins, Kidneys, and Groin of the opposite Side; and it is for this Reason, that she can lie in no other Situation than upon her Back.

As soon as ever an Inflammation is perceived, there is no room for Delay; and, though the Lochia flow in abundance, Fomentations must be applied to the Part in Pain, which is generally hard; for, if this is neglected, the Pain and Hardness quickly increase considerably. Mean time Clysters of an emollient Decoction only, in half the usual Quantity, must be made use of; or, if the Woman is costive, a Clyster of Whey with two Ounces of Honey of Violets may be used, first in order to discharge the harden'd Excrements, and after that the half Clysters above-mention'd, which will be the more effectual, the longer they are remain'd.

If these are not sufficient to prevent the Increase of the Pain and Hardness, recourse must immediately be had to Bleeding in small Quantities, but often repeated, so long as the Symptoms either increase or continue.

The Regimen must be of Veal and Chicken-broth, avoiding every thing solid. Her Drink should be Water, impregnated with a very little with Cinnamon; and, if the Fever is but slight, one eighth Part of Wine: All other spirituous Liquors must be avoided.

The Pains above-mention'd, attending an Inflammation of the Womb, sometimes extend themselves to the Inside of the Thighs, when a Woman turns on one Side.

*La Motte* uses a fourfold Napkin dipped in new Milk warmed, as a Fomentation, whilst more powerful Fomentations are preparing. He, also, generally bleeds once in twelve Hours.



He disapproves of uterine Injections, because, he says, if the Pipe of the Syringe should be introduced into the Womb, it would irritate the Part, and increase the Inflammation; and because, in this inflamed State of the Womb, the Mouth is entirely closed, and therefore an Injection could reach no farther than the Vagina.

He, also, disapproves of Bleeding in the Foot, because that must bring a greater Flux of Blood to the Part already inflam'd; he therefore prefers Bleeding in the Arm.

#### CONVULSIONS.

Women are sometimes seized with Convulsions, before, during, and after Labour. The Prognostic to be made upon this Occasion, is according to the Violence of the Convulsions, and their Causes.

A long Suppression of Urine will sometimes cause Convulsions.

When Convulsions, during Labour, begin to be violent, and the Woman weak, Delivery must by all means be hasten'd; as it must be at all times of Pregnancy, Convulsions generally ceasing soon after Delivery. But, when the Case will permit, we should wait to see what proper Medicines can do, and how far Nature is able to relieve herself.

Women will frequently be seized with Convulsions, without any manifest Cause, and very suddenly.

When a Woman is in Convulsions, it may sometimes be perceived, that she is in Labour, by a small Motion of her Lips, and an uneasy Movement of the lower Parts; and then Delivery is to be hasten'd. *La Motte*.

If a Retention of Urine is the Cause of Convulsions, the Catheter must be used; but the Neck of the Bladder is sometimes so compressed betwixt the Os Pubis and Head of the Child, that the Catheter will not pass: In this Case, the Head of the Child must be thrust back, with one or more Fingers, the Woman being placed in the same Situation as if she was in Labour; and then the Catheter will pass; and perhaps the Woman may make Water, without the Catheter.

Convulsions are sometimes caused by a Plethora; and then Bleeding judiciously repeated, Clysters, and Purges, are the proper Remedies. *La Motte*, *Obs.* 222. gives an Instance of a Woman, whom he was obliged to bleed fourscore and six or seven times, during the five last Months of her Pregnancy, taking away but a small Quantity at a time; and notwithstanding this prodigious Loss of Blood, she was at last delivered of an hearty Child, and did very well herself. This Woman had used herself to eat great Quantities of improper Food.

Convulsions which happen after Delivery, are always dangerous.

If they are caused by the Suppression of the Lochia, Care must be taken to procure their Return, if possible.

If Convulsions proceed from an Hemorrhage, it must be stopped or diminished by all proper Methods.

*La Motte* tells us of two Women who were seized with violent Convulsions after Delivery; and this happen'd every time they lay-in: These he cured by giving them Broths, a little at a time, and often repeated, in order to repair the Loss of Blood, and Clysters in very small Quantities.

He advis'd them, as soon as they perceived themselves with Child the next time, to bleed, and repeat it frequently during their Pregnancy; and to take once every Month, for the three first Months, an emollient Purge, of

One Dram of Rhubarb, infused for ten or twelve Hours, in a large Glass of Water: Add to this an Ounce and an half of Cassia Fistula: Pour upon this some Broth, and dissolve in the strained Liquor one Ounce of Manna: Strain it again, and let the Woman take it early in the Morning; and, two Hours after, let her take a little Broth.

If a Woman is attacked with Convulsions, and a Suppression of the Lochia, *La Motte* advis'es Bleeding, and anodyne cooling Clysters.

#### DIARRHOEA.

*La Motte* gives the History of a Case, where a young Lady, at her full Term, was seiz'd with slow Pains, which increas'd in a little time, insomuch that they thought she would be soon deliver'd; but they went off again, and return'd the next Day; and so continu'd sometimes more, and sometimes less strong, by Intervals, till the eighth Day, when they increas'd so much, that the Lady was deliver'd. She continu'd very well for the six first Days, without, however, having any Sleep since the time she was first seiz'd with Pains, which was fourteen Days. At this time she was seiz'd with a violent Shivering, which was follow'd by as violent a Fever, accompanied with a Delirium, Diarrhoea and Vomiting, her Belly being distended, hard, and painful, and she herself extremely weak. The Lochia, however, continued in Plenty, which was the only encouraging Circumstance.

In order to appease the Gripings, with which she was much afflicted, he gave her four times a Day half the usual Quantity of a Clyster, made with a Decoction of wash'd Bran, Verbascum album (a Species of Mullein), Flowers of Chamomile and Melilot, with Linseed, and an equal Quantity of Broth. At the same time, he applied to her Belly a Napkin doubled, and soak'd in new Milk, as hot as she could bear it. Her common Drink was a Decoction of the Roots of Marshmallows, Shavings of Hartshorn and Ivory, with a little Quince Marmalade; at Night, she took two Spoonfuls of Syrup of Maiden-hair, with an Ounce of Oil of sweet Almonds, and a few Spoonfuls of *Spanish*, or other Wine; her ordinary Food was Broths, or Soups in small Quantities, and a little *Bouillie de Froment*, I suppose he means hasty Pudding; and by these means the Symptoms were reliev'd, and she recover'd by degrees.

*La Motte*, remarks upon this Occasion, that *Laudanum* is a Specific for these Disorders, at any other time but in Childhood; but then particular Care must be taken, that neither *Laudanum*, nor any other Narcotic, is given, of any sort whatever; for they never fail to suppress the Lochia, and for that Reason to be fatal: Of which he gave an Instance in a Lady who died four Days after taking a Julap of Syrup of white Poppies, and Oil of sweet Almonds, as a Cure for violent Gripes, and to stop a Diarrhoea, which it effectually did, as well as the Lochia, which could never afterwards be recall'd by any Remedies whatever.

He, also, tells us of another Lady, whose Lochia were suppress'd by taking a Grain of *Laudanum* upon the same Occasion; which brought on a Dropsy, of which she died some Months after.

#### TUMORS OF THE BREASTS.

If a Woman takes Cold at her Breast, or any-where else, during her Lying-in, her Breasts are very subject to Inflammations, which generally terminate in an Abscess, if not prevented.

*La Motte's* Method of treating these Cases, as appears by *Obs.* 434. is to endeavour, first, to resolve the Tumor by Bleeding, emollient Clysters, and a low Regimen, by Applications of warm Milk and Brandy, and an Ointment of the Oils of Roses, Lilies, and Chamomile.

But if the Resolution is impossible, and an Abscess must necessarily be produc'd, he makes use of an anodyne Cataplasm of the Crums of wheaten Bread, Milk, the Yolks of Eggs, Saffron, and Oil of Chamomile; and afterwards changes this Form for one more emollient, and consisting of a Mucilage of Linseed, Mallows, Marshmallows, Rye, Meal, Bran of Wheat, Chamomile-flowers, and Melilot, together with the Oils of Lilies, and Chamomile; and again changes this for one more maturative, and which consists of Onions roasted under the Ashes, old Leaven, and Ointment of Marshmallows. When Matter is perfectly form'd, he lets it out with a Lancet, deterges; incises, and cicatrizes.

These Accidents will sometimes be caus'd by Cold taken during Labour.

*La Motte* says, he has known several Women have an Apoplexiation in the Breasts, only for having laid their Hands and Arms out of Bed.

#### AFTER-PAINS.

After-pains are very useful to a Woman; for these promote the Discharge of the Lochia, and expel Clots of Blood, or any thing which is left behind, and ought to come away.

After-pains are easily distinguish'd from Pains of any other kind; for they come by Fits, and last but a little while; and the Lochia flow abundantly, especially just after the Pain ceases, which does not happen after Colic-pains.

In Pains which proceed from an Inflammation of the Womb, or Suppression of the Lochia, the Belly is hard, distended, and painful, which never happens in the Case of After-pains.

As most Women are subject to these After-pains, and as they are of real Service, nothing more is necessary than to apply a soft and warm Napkin to the Belly, and to keep the Woman very warm.

Sweating often relieves a Woman from these Pains, provided it be spontaneous.

Sometimes After-pains are more violent than Labour-pains, and become almost insupportable, but cease generally in two or three Days, but sometimes continue seven or eight. *La Motte*, however, in this Case leaves the Cure to Nature, unless the Woman is costive, and then he advis'es an emollient Clyster.

#### THE COLIC.

The Colic is easily distinguish'd from After-pains, because a Colic does not increase the Discharge of the Lochia, which After-pains do, especially just after they cease.

For the Cure of the Colic, *La Motte* recommends emollient Clysters, and Fomentations with new Milk.

This



This Author recommends an Ounce of Oil of sweet Almonds in half a Glass of Wine, and a little Sugar, or Syrup of Maidenhair, to be taken at once, as very proper in the Colic.

#### VAPOURS.

Some Women in Child-bed are so subject to Vapours, that the least Surprise give Occasion to them; or a good or bad Smell of any thing, particularly Musk. They are attended with a sudden Heat and Redness all over the Face and Body, violent Agitations, Trembling, Inquietude, Respiration either high and frequent, or weak and slow; Tears, and an Inaction of all the Parts of the Body, almost as much as in a Lethargy.

*La Motte* says, he has known Women seiz'd with Vapours upon being oblig'd to keep their Hands in Bed, which have ceas'd immediately after taking them out again.

Sometimes Vapours are so violent, as to make a Woman delirious; and sometimes the Pulse is so weak and languishing, that the Woman seems expiring; however, *La Motte* says, he never knew any one die of them.

The Remedies recommended by the same Author, in this Case, are Spirit of Sal Ammoniac, and Oil of Amber, to smell to; the Confection of the Hyacinth, in Water of Mugwort; Clysters of Whey, Mugwort, Feverfew, Rue, Camphire and Castor, he, also, says, are good Medicines in this Case.

A Sense of Suffocation and continual Efforts to swallow, are sometimes Symptoms of the Vapours. *La Motte*.

#### MISCELLANEOUS OBSERVATIONS.

A Woman has sometimes all the Signs of Pregnancy, without being with Child, the Symptoms of Impregnation being caused by a great Collection of Water in the Womb. In this Case, the Belly is much bigger than in that of a Mole; when the Woman lies on her Back, with her Knees elevated, her Belly is found soft and equal all over, without any Difference betwixt the inferior and superior Part, which is contrary to what happens in Pregnancy; besides, the Woman does not perceive the Child to move at the usual time; the Woman's Face is moreover generally pale and emaciated.

In an Ascites, when a Woman lies upon her Back, and an Hand is placed on each Side the Belly, when the Belly is press'd with one Hand, a Fluctuation is perceiv'd by the other; but, in the Case before us, no such Fluctuation can be perceiv'd.

These Waters are frequently discharg'd, at different Periods of Time, without any considerable Accidents.

These Waters are sometimes contain'd in a Membrane, which is attach'd to the Womb by some Blood-vessels; and in this Case there will be a Flooding, till the Membranes are excluded; but if the Membranes happen to stay long enough to putrefy, besides the Accident of Flooding, and Pains like those of Labour, the Woman will be seiz'd with violent Pains in her Head, and Shiverings, tho' at the same time extremely hot and burning to the Touch, and sometimes a Delirium.

Sometimes the Womb is so distended with Wind, as to give all the Appearances of Impregnation, notwithstanding which the Menstrual Flux continues often. In this Case, at the End of eight or nine Months, or sooner, the Womb discharges itself involuntarily of these Flatulencies with a Noise, as if it came from the Anus, and the Woman recovers without any farther ill Consequence. *La Motte* gives us an Example of this kind.

It must be observed, that the Woman mention'd by *La Motte* had a true Conception immediately after the Discharge of these Flatulencies.

When a Woman takes Cold during a Lying-in, 'tis a good Symptom not to have the Lochia stop'd, and to have the Belly soft and even.

*La Motte* gives an Instance of a Woman under these Circumstances, who was seiz'd with a violent Looleness, attended with a Shivering, and Pains all over, and want of Rest, whom he cured, by giving her an half Clyster of Broth; two Hours after that, an Ounce of Oil of sweet Almonds; and an Hour after that, a Draught of Broth: And then adding a few more Cloths on the Bed, she sweat, plentifully, and recover'd of all these Symptoms by the next Day.

In order to examine whether the Belly is swell'd or not, the Woman must be put in the same Posture, as is directed by *La Motte* for Delivery; that is, upon her Back, with her Knees elevated, and Heels placed near the Buttocks. *La Motte*.

When a Woman is in Labour, there shou'd be a Fire in the same Room, or one very near it, let the Season be never so hot. For the Water flowing away at every Pain, will make her take Cold, if she is not constantly supplied with warm Cloths.

*Hippocrates* mentions Cold, as condensing the Lochia, and directs Patients under these Circumstances to be made warm.

When a Woman has sweated profusely for the eight or ten first Days of her Lying-in, it often hardening upon the Skin, causes a troublesome Itching. In this Case *La Motte* approves

of *Mauriceau's* Advice, who directs a Bath of warm Water. But, in cold Weather, this must be done with Care and Caution, for fear of opening the Pores too much.

Nothing is more serviceable to Women in Child-bed, than plentiful Sweats; for they prevent Fevers, and all other bad Consequences; and cure them when they happen. Infomuch that 'tis common to see a Woman seiz'd with Shiverings, and Pains in the Breasts, Hips, and other Parts, attended with a violent Fever, and recover very soon by plentiful continu'd Sweats. *La Motte*.

*La Motte's* Method of Regimen for Women in Child-bed, is to give them, from time to time, a little Broth; and sometimes a little Toast and Wine, if there is no Reason to apprehend a Fever.

He recommends the following Mixtures, as a proper Drink for Lying-in Women.

Two Quarts of Water, Cinnamon a Dram, Sugar two Ounces.

Let these boil a quarter of an Hour, and then let it be drank always warm. If no Fever is apprehended, a little Wine may be added.

If the Woman continues costive till the third Day, he says, he never fails giving an emollient, or gently purging Clyster.

And the fifth Day he allows Fowl, either roasted or boil'd.

The Meconium is the Excrement of the Child, of the Consistence of Honey, and of a brownish Colour.

If this is discharg'd from the Womb, when the Child is well situated, 'tis a Sign the Child is dead, especially if the Labour is long, and particularly if the Navel-string presents before the Head. But when the Child presents in any constrain'd Situation, especially with the Buttocks, no Notice is to be taken of it, nor any Conclusion to be drawn from it with respect to the Child's Death. *La Motte*.

Women in Child-bed, upon exposing themselves to the Cold, whilst they sweat especially, are sometimes seized with violent Pains in the Side, attended with a Cough, and Fever, and Difficulty of Respiration, tho' at the same time the Lochia proceed well.

*La Motte* seems in this Case to treat a Woman with great Judgment, his Intention being to relax by all possible means. He, therefore, directs Bleeding in small Quantities, and repeats it at short Intervals, if necessary; and gives emollient Clysters of Whey only; making the Patient drink large Quantities of diluting Liquors. He bleeds in the Arm, and repeats it, till the Pain ceases, and affirms that Bleeding is the only Remedy to be depended on in these Cases.

Vomiting is generally a Sign of a speedy Delivery; but, when it continues long, it becomes a very pernicious Symptom, because it prevents the Woman from taking any proper Nourishment to keep up her Strength.

If a Woman in Labour vomits a black Matter, or Substance like Hogs-blood boil'd and coagulated, 'tis a fatal Symptom, especially if it smells offensively. *La Motte*.

#### OBSTRUCTION. An Obstruction. See INFLAMMATION.

An Obstruction is such an Oburation of the Vessels, as prevents the Circulation of the Fluids, whether of the sound and vital, or of the morbid and peccant Kind, through them; arising from an Excess of the Bulk of the Fluid to be transmitted above the Capacity of the Vessel which ought to transmit it.

Such an Obstruction proceeds either from the Narrowness of the Vessels, or the excessive Bulk of the Fluids to be transmitted thro' them, or from a Concurrence of both these Circumstances.

The Narrowness of the Vessels is produced, either by external Compression, the proper Contraction of the Vessels themselves, or an increased Thickness in their Membranes.

The Bulk of the Molecules of the Blood is increased by the Viscidity of the Fluids, or by means of an *Error Loci*.

An Obstruction may, also, proceed from a Narrowness of the Vessels, in Conjunction with a preternatural Bulk of the Molecules of the Fluids.

The Vessels may be externally compressed,

First, By an adjacent Tumor, either of the plethoric, inflam'd, purulent, scirrhus, cancerous, oedematous, encysted, steatomatous, atheromatous, melicerous, hydaridic, aneurismatic, varicose, tophous, pituitous, calculous, or callous Kind.

Secondly, By Fractures, Luxations, Distortions, or Distractions of the harder Parts of the Body, compressing the flexible and pliant Vessels.

Thirdly, By every Cause which preternaturally stretches and lengthens the Vessels, whether by a Tumor, or the Pressure of a Part when out of its natural Situation, or by an external stretching Force.

Fourthly, By external compressing Causes, such as too tight Cloths, Bandages, the Weight of an incumbent Body pressing upon one particular Part, and Ligatures. This Effect may, also, be produced by Motion, Attrition, and embracing other Bodies; for, when any Part of the human Body is moved against an hard Obstacle, the flexible Vessels are necessarily compressed: Those who



who are not accustomed to travelling, have their Feet inflamed by long Journeys; and those who tug severely at the Oar, have their Hands inflamed; and, if that Exercise is long-protracted, Vesicles of an almost gangrenous Nature are raised.

An increased Contraction, especially of the spiral Fibres, and, also, of the longitudinal, lessens the Cavities of the Vessels; and this Contraction arises, first, from every Cause which increases the elastic Force of the Fibres, Vessels, and Viscera. Secondly, from the Tumor, and preternatural Distention, of those minute Vessels, by a Contexture of which, the Sides of the larger Vessels are formed. And, thirdly, by a Diminution of that Cause which dilates the Vessels, whether, for Instance, Inanition, or a languid State of the Vessels: Hence Vessels, when divided, soon confine and restrain the Discharge of their contained Fluids; and the Reason of this is sufficiently obvious: For whilst the Blood is, by the Force of the Heart, propelled into the Arteries, the greater Resistance there is about their Extremities, the more they are dilated. But, when an Artery is divided, there is scarcely any Resistance, and the Blood flows freely from the Wound. In consequence of this, the Artery is not distended, but by its own Contractility is gradually more contracted, till at last it totally hinders the Effusion of the Fluid, which would otherwise be discharged. Hence it is, that so violent Hemorrhages happen from half-divided Vessels, which cannot be successfully stoppt, till the Vessels are totally divided.

The Thickness of the Membranes of the Vessels is increased, first, by every Tumor happening in those Vessels, by the Union and Contexture of which the Membranes are formed: And, secondly, by Calluses either of a cartilaginous, membranous, or bony Nature, formed there.

The Bulk of the Fluids is so increased, as to become incapable of circulating either, first, by a Change of the spherical Figure of their Parts, into any other; and thus entering the Cavities of the Vessels under a larger Surface: Or, secondly, by the Union of several Molecules before separated.

The Figure of these Molecules is principally changed by a Cessation of the equable and uniform Pressure upon them, so that they are left to their own Elasticity; and this happens, when the Motion of the Blood is languid, the Vessels relaxed, or the Quantity of the Fluids diminished.

The Molecules of the Fluids are united by Rest, Cold, Frost, Exsiccation, Heat, a violent Circulation of the Blood, a strong Compression of the Vessels, as, also, by acid, coagulating Things; by austere, spirituous, and absorbent Substances; and by the Viscidity and oleous Quality of the Fluids.

By an *Error Locæ*, the Fluids become incapable of circulating, if Corpuscles enter the dilated Bases of conical Vessels, and are, at the same time, incapable of passing through the narrower Parts of these Vessels. A Plethora, an increased Motion of the Fluids, their Rarefaction, or a Relaxation of the Vessels, principally produce this Dilatation; especially, if these are immediately succeeded by their Contraries.

Hence the Causes and Nature of every Kind of Obstruction may be understood.

An Obstruction, happening in a live Body, hinders the Circulation of the Fluids, which ought to pass through the Vessels; stops the other Particles of the Blood convey'd to it, and receives their Action; expresses the more subtle, and unites the grosser Parts of the Fluids; extends, dilates, attenuates, and resolves the Vessels; condenses the stagnant Fluids; destroys the Functions arising from an uninterrupted Circulation; empties and dries the Vessels, which ought to have the circulating Fluids convey'd into them; lessens the Capacities of the Vessels, which ought to transmit the Fluids; augments both the Quantity and Velocity of the Fluids in the unobstructed Vessels; and, consequently, produces all the Evils which can arise from thence.

For this Reason, the Effects of an Obstruction are various, according to the Diversity of the obstructed Vessel, and the obstructing Matter.

In the sanguiferous arterial Vessels, an Inflammation of the first Kind happens; in the dilated, lymphatic, arterial Vessels, an Inflammation of the second Kind; in the larger lymphatic Vessels, an Oedema; in the smaller, Pains without any apparent Tumor; but in the pinguiferous, ossæous, medullary, and biliary Vessels, other Disorders arise from an Obstruction.

The Physician, who knows the Seat, the Nature, the Matter, the Causes, and the Effects of Obstructions already mentioned, will easily discover the Signs of a future and present Obstruction, together with their Effects.

When the different Kinds of Obstructions are distinctly known, 'tis no difficult Matter to find a Cure adapted to each.

For that Species of Obstruction which arises from external Compression, indicates the Removal of the compressing Cause, if possible.

That Species of Obstruction, which arises from an increased Contraction of the Fibres, may be known by those Signs which discover a Contraction of the Viscera, Vessels, and Fibres. That Kind of Obstruction in which the Contraction arises from a Tumor of the minute Vessels, which constitute the Sides and Cavities of the larger Vessels, may be discovered by the manifest Signs

of its Cause; as, also, that Species of Obstruction which arises from Inanition, or a Diminution of the Cause which dilated the Vessels.

This Species of Obstruction is removed, first, by such Medicines as correct the too great Contraction of the Fibres, Vessels, and Viscera; secondly, and more especially, if their Virtues have immediate Access to the Part affected, which Advantage is principally obtained by Fomentations, Fumigations, Baths, and Ointments; thirdly, by such Remedies as empty the too full Vessels composing the Membranes. This Intention is answered by Evacuants in general, but especially by laxative, diluting, resolvent, attenuating, deterfive, and evacuant Medicines apply'd to the Vessels themselves; and, fourthly, by such Medicines as resolve Callosities, when formed.

But the Species of Obstruction, which arises from this Cause, is rarely or never to be cured: Emollient and relaxing Medicines are, however, most efficacious. Hence appears the inevitable Necessity of Death, and the great Difficulty of procuring a long Life, by means of Medicines.

That Unfitness of the Fluids for passing through the Vessels, which depends upon their losing their spherical Figure, may be known from an Investigation of its Causes, which are, for the most part, subjected to the Senses.

It is cured by such Remedies as restore the spherical Figure of the Globules of the Blood. Of this Kind are all those Things which increase the Motion of the Fluids through the Vessels and Viscera, such as all stimulating and corroborating Medicines, as, also, brisk Motion.

As the Concretion and Inspissation of the Fluids arises from so various and different Causes, so it requires different Methods of Treatment, and different Medicines, according to the different Conditions of the Patient. And this Diversity of Causes, when investigated, will discover the most proper Medicines, and the best Method of using them.

The Concretion of the Humours, in general, is removed, first, by the reciprocal Motion of the Vessels; secondly, by Dilution; thirdly, by an attenuating Fluid convey'd to the Mass of Blood; mixed with it, and circulating along with it; and, fourthly, by removing the coagulating Cause.

The reciprocal Motion of the Vessels is procured, first, by such Remedies as diminish the distending Causes, such as Venesection; secondly, by such Medicines as corroborate the Vessels; thirdly, by Friction, and muscular Motion; and, fourthly, by stimulating Medicines.

Water, especially when warm, is a powerful Diluent, when drank, injected, received by Exhalations, or apply'd in any other manner; provided it is propelled from the Parts to which it is apply'd, to those where the Matter, to be resolved, is lodged. This Intention is answered by deriving, attracting, and propellent Remedies.

The Fluids are attenuated, first, by Water; secondly, by Sea-salt, Sal Gemmæ, Sal Ammoniac, Nitre, Borax, fixed and volatile alkaline Salts; thirdly, by native Soaps, consisting of an Alkali, and an Oil; by compound Soaps, whether fuliginous, volatile, or fixed; as, also, by Bile.

Native Soaps, consisting of an Oil, and an Alkali, are, recent and mature Juices, expressed from all Herbs abounding with an alkaline Acrimony, or such as are of an highly aromatic Quality. Artificial Soaps, consisting of an Alkali and Oil, are black Soap, and Venice Soap, one or two Drams of which may be used; and Starkey's, or Helmont's Soap, four Grains, or one Scruple, of which may be used. Fuliginous volatile Soaps are, oleous and alkaline Spirits prepared of alkaline Aromatics, fifteen Drops of which may be exhibited; oleous alkaline Spirits prepared of Soot, fifteen Drops of which may be given; the oleous alkaline Spirits prepared from all the Humours or solid Parts of Animals, eighteen Drops of which may be exhibited. To this Class, also, belongs Soot itself.

And, fourthly, the Attenuation of the Humours is promoted by Preparations of Mercury. All these are convey'd to the Parts obstructed, by Derivation, Attraction, and Propulsion. Proper Mercurials are Mercurius dulcis, ten Grains of which may be used for a Dose. Corrosive Sublimate, one eighth Part of a Grain may be exhibited, diluted in some proper Liquor; red Precipitate, two Grains for a Dose; white Precipitate, four Grains; Turbith Mineral, two Grains; and Æthiops Mineral, sixteen Grains.

Attracting Medicines are such as relax the Place to which the Matter is to be convey'd; and straiten that from which it is to be drawn. These are specified under the Article *FINNA*.

Deriving Medicines are those which invite the Fluids into any given Part; and such are the Remedies which produce an Evacuation in the Part affected; and artificial Frictions of the adjacent Parts.

Propellent Medicines are those of the stimulating Kind, which are specified under the Article *GLUTEN*.

The Cause which coagulates the Fluids, is removed by the Influence of strongly-attracting Medicines: Thus Acids and Oils are attracted into Alcalis, as is obvious from chymical Experiments.



But when the Fluids, propelled into improper Places, become incapable of circulating, and by that means generate Obstructions, many and violent Disorders are produced; for which Reason the Source and Cause from which they proceed, ought to be carefully attended to.

We may know, that the Fluids are propelled into improper Places, first, if we know, that the Causes of such a Disorder, which are generally sufficiently obvious, have preceded; secondly, if contrary Causes have succeeded these; and, thirdly, if the Effects are evidently perceived.

From what has been before said, we may easily foresee what the Consequences of such a Disorder must be.

The Cure is obtained, first, by repelling the impacted Matter, with a retrograde Motion, into larger Vessels; secondly, by resolving it; thirdly, by relaxing the Vessels; and, fourthly, by Suppuration.

The impacted Matter is repelled with a retrograde Motion, first, by evacuating the Fluid which acts upon the impacted Matter, by a liberal and sudden Venesection, by which means the obstructing Matter is forced back by the Effort of the contracted Vessel; and, secondly, by Friction, performed from the Extremities to the Bases of the Vessels.

The impacted Matter is resolved, and the Vessels relaxed, by the Medicines already mentioned. *Boerhaave's Aphorisms.*

I have been the less particular in explaining these Aphorisms, because they will be readily understood, by what is said under the Articles FIBRA, and INFLAMMATIO.

OBTUNDENTIA. Medicines which obtund, or correct the Acrimony of the Humours.

OBTURATIO. Obturation, or Obstruction. See OBSTRUCTION.

OBTURATOR. A Name for two Muscles of the Thigh; one of which is the MARSUPIALIS, and is called, *Obturator Internus*. See MARSUPIALIS. The other is the

OBTURATOR EXTERNUS. This is a small flat Muscle, which fills up the Foramen Ovale of the Os Innominatum exteriorly, and reaches from thence to the great Trochanter of the Os Femoris, behind the Neck of that Bone.

It is fixed by fleshy Fibres to the outer or anterior Side of the Os Pubis, all the Way to the Foramen Ovale, to the Edge of that Hole, next the small Branch of the Ischium, and a little to the neighbouring Parts of the Obturator Ligament.

From thence its Fibres, contracting in Breadth, pass on the fore Side of the great Branch of the Ischium, under the Acetabulum, where a Tendon is formed, which continues its Course behind the Neck of the Os Femoris towards the great Trochanter, and is inserted between the Gemelli and Quadratus, into small Fossulae, between the Apex of the great Trochanter and the Basis of the Collum Femoris.

The Obturator Externus concurs with the Internus in the same Uses, tho' in a more simple, and in a more uniform Direction. It acts chiefly when the Thigh is extended more or less; for, when the Thigh is bent, it only seems to co-operate with the Obturator Internus, in its Action on the Orbicular Ligament; because, in other respects, it is rather an Assistant to the Triceps, and performs the Motion of Rotation the other Way. *Winslow's Anatomy.*

OCCASIO, in Medicine, imports either Opportunity, a due Regard to which is of very great Importance to a Physician; or sometimes it signifies a Cause.

OCCIDENS. Vinegar. *Rulandus.*

OCCIDENS STELLA. Sal Ammoniac. *Rulandus.*

OCCIPITALIS MUSCULUS. The Occipital Muscle. See CAPUT.

OCCIPIO-FRONTALIS, according to *Douglas*, is a Muscle of the Head; which he thus describes.

It arises fleshy from the transverse Line of the Occiput, opposite to Part of the superior Termination of the *Mastoidaeus*, and Part of the Beginning of the *Trapezius* next it, and then tendinous from the rest of that Line backwards, arising after the same manner, on the other Side; from thence it grows strait up, and soon becoming all tendinous, it covers the two parietal Bones, and the *Ossa Squamosa*, above the Temporal Muscles, its outer Edge being fastened to the *Os Jugale*, on each Side. This broad Tendon near the Coronal Suture grows fleshy, and descends with strait Fibres as low as the *Musculi Orbiculares*.

It is inserted into the Skin at the Eye-brows, having sent down, between them, a narrow fleshy Slip, or Elongation, which is continued over the *Ossa Nasi*, as far as its cartilaginous Part, where its Fibres run off on each Side, and terminate in the Skin above the *Musculus Nasi Proprius*.

When this digastric Muscle, which covers all the upper Part of the Skull, like a Cap, acts, it pulls the Skin of the Head backwards, and at the same time it draws up and wrinkles that of the Forehead, being antagonized by the Corrugator. *Douglas's Myograph. Comp.*

OCCULTUS. Occult. Cancers not exulcerated, are called occult Cancers.

OCHEMA, ὄχημα. The finest and most fluid Part of the Blood and Chyle. *Galen.* It seems to be what the Moderns call Lymph.

OCHETEUMATA, ὀχετεύματα. The Foramina of the Nose.

OCHETOS, ὀχετός. A Passage, Duct, or Canal, in any Part of the Body. It is principally used, by *Hippocrates*, with respect to the Passages for Urine, Stools, and Sweat.

OCHEUS, ὀχεύς. The Scrotum.

OCHRA, Offic. Mer. Pin. 218. Charlt. Foss. 2. Schrod. 320. *Ochra Anglica.* Worm. 17. *Ochra.* Aldrov. Mus. Metall. 254. *Ochra nativa.* Calc. Mus. 137. *Ochra nativa sive Sil Gossariensis.* Kentm. 8. *Ochra fossilis seu nativa crocei coloris.* Dougl. Ind. 64. *Vitriolum abortivum.* Lillar. de Font. Sil. Plin. YELLOW OKER.

It is an argillaceous Substance, of a yellow or luteous Colour, and an astringent Taste. As to its Virtues; it is drying, astringent, discutient, and represses Excrescences. It is very seldom used, and never but externally, and that principally in Marks by Blows or Stripes, and in Collisions, and for discussing hard Tumors. *Dale.*

OCHREA. The fore Part of the Tibia.

OCHRUS.

The Characters are;

It has a round, smooth, cylindrical Pod, which is full of round Seeds; and the Leaves are articulated, sometimes simple, sometimes conjugated, and terminate in Tendrils.

*Boerhaave* mentions but one Sort of this; which is,

*Ochrus folio integro Capreolos emittente.* C. B. P. 313. *Lathyrus folio integro, producente bina foliola, Capreolos emittente.* M. H. 2. 58. *Lathyrus Species, quæ Ervilia Dodonæi sylvestris.* J. B. 2. 17. 305. *Ervilia sylvestris.* Dod. p. 522. *Boerh. Ind. alt. Plant. Vol. 2. p. 43.*

The Seeds, which are cylindrical, of the Size of a small Pea, and of a dark-yellow Colour, are eatable, but generate a viscid Chyle, subject to cause Obstructions. *Hist. Plant. adscript. Boerhaav.*

OCHTHODES, ὀχθώδης, from ὀχθῶς, importing the tumid Lips of Ulcers. Callous, tumid. It is also an Epithet for Ulcers which are difficult to heal.

OCIMASTRUM. See OCYMASTRUM.

OCIMUM. See OCYMUM.

OCLASIS, ὀκλασις. That Posture which is called Cowering; which is, when a Person, standing, brings his Knees forwards, towards which the Abdomen approaches, whilst the Buttocks descend, and come near to the Ground, or the Heels.

OCOB. Sal Ammoniac. *Rulandus.*

OCOLOXOCHITL, seu Flos Tigris. Hernandez. *Tigridis Flos.* C. B. Dod. Lob. Ger. *Tigridis Flos Dracunculi Species putata.* J. B.

It is described by *C. Bauhine*, and *F. Hernandez*, as having a Root like a Leek, Leaves like the *Gladiolus*, a Flower of a very beautiful red Colour, but white in the Middle, and spotted like a Tyger's Skin; whence it took its Name.

An Ounce of the Root, taken in Water, cools the Body, and extinguishes a Fever, and prevents those minute Eruptions [*Punctis adversatur*], which are usually consequent upon Burning Fevers. Some say, the Root, eaten, causes Fecundity; for it is esculent, and a cold, tho' not altogether unpleasant Food, lubricous, and good for the Breast.

It delights in a temperate Climate, like that of the City of Mexico; and thrives best in Gardens, and moist and cultivated Places. *Rail H. P. p. 1165.*

OCRIS, ὀκρίς, is expounded by *Galen*, in his *Exegesis*, an oblong Prominence, or Eminence. Hence ὀκροειδής, and ὀκρεῖς, Adjectives which import, having an oblong Eminence, or Protuberance.

OCTUNX. Eight Ounces.

OCULARIA. A Name for the *Euphrasia*, Eyebright.

OCULI CANCERORUM. Crabs-eyes. See CANCER.

OCULISTA. An Oculist.

OCULUS. The Eye.

The Eyes are commonly two in Number, situated at the lower Part of the Forehead, one at each Side of the Root of the Nose; and they are made up of hard and soft Parts. The hard Parts are the Bones of the Cranium and Face, which form two pyramidal or conical Cavities, like Funnels, to which we give the Name of Orbits. The soft Parts are of several kinds. The principal and most essential soft Part in each Organ, is the Globe or Ball of the Eye; the others are partly external, and partly internal: The external Parts are the Supercilia, or Eye-brows, the Palpebrae, or Eye-lids, the Caruncula lachrymalis, and the Puncta lachrymalia; and the internal Parts are the Muscles, Fat, lachrymal Gland, Nerves, and Blood-vessels.



Seven Bones are concerned in the Composition of each Orbit, the Os Frontis, Os Sphenoidale, Os Ethmoides, Os Maxillare, Os Mala, Os Unguis, and Os Palati. In each Orbit we are to consider the Edge, Sides, and Bottoms: The Edge is formed by the Os Frontis, Os Maxillare, and Os Mala; the Bottom by the Os Sphenoides, and Os Palati; and all these Bones, except the Os Palati, contribute to form the Sides.

The Bottom is perforated by the Foramen Opticum of the Os Sphenoides; and the external Side near this Foramen, by two orbitary Fissures; one superior, called *Sphenoidales*, the other inferior, called *Spheno-maxillaris*.

All the Cavity of the Orbit is lined by a Membrane, which is an Elongation or Production of the Dura Mater; and it comes partly through the Foramen Opticum of the Os Sphenoides, and partly through the sphenoidal or superior Orbit of the Fissure. This Membrane, which may be looked upon as the Periosteum of the Orbit, communicates with the Periosteum of the Basis Cranii, by the inferior Orbitary Fissure, and with the Periosteum of the Face at the Edge of the Orbit. At the upper Part of the Edge of the Orbits, the two Periosteum form a kind of broad Ligament, and a narrow one at the lower Part of this Edge, which I shall call Ligaments of the Palpebrae.

The particular Situation of the Orbits represents nearly two Funnels, placed laterally at a small Distance from each other, in such a manner as that their Apices are almost joined, their nearest Sides almost parallel, and the other Sides turned obliquely backward; and, for this Reason, the Middle of the great Circumference or Edge of each Orbit is at a much greater Distance from the Septum Narium, than the Bottom, or Apex; and the Edge, or great Circumference, is very oblique; the temporal or external Angle of the Orbit lying more backward than the nasal or internal Angle.

#### THE GLOBE OR BALL OF THE EYE.

The Globe of the Eye, being the most essential of all the soft Parts belonging to the Organ of Sight, and being likewise a Part which we are obliged to mention as often as we speak of the other soft Parts, must be first described. It is made up of several proper Parts, some of which, being more or less solid, represent a kind of Shell, formed by the Union of several membranous Strata, called the Coats of the Globe of the Eye; and the other Parts, being more or less fluid, and contained in particular membranous Capsulae, or in the Interstices between the Coats, are termed the Humours of the Globe of the Eye. These Capsulae are likewise termed Coats.

The Coats of the Globe of the Eye are of three kinds: Some form principally the Shell of the Globe; some are additional, being fixed only to a Part of the Globe; and some are capsular, which contain the Humours. The Coats which form the Shell, are three in Number: The external, whence the Convexity of the Globe proceeds, is termed Tunica Sclerotica, or Cornea; the middle Coat is named Choroides; and the third or innermost, Retina. The additional Coats are two, one called Tendinosa, or Albuginea, which forms the White of the Eye, and the other Conjunctiva. The capsular Tunicae are, also two, the Vitrea and Crystallina.

The Globe of the Eye, thus formed, sends out backward a pretty large Pedicle, which is the Continuation of the Optic Nerve: It is situated about the middle of the Orbit, in the manner which we shall afterwards see; and it is tied to it by the Optic Nerve, by six Muscles, by the Tunica Conjunctiva, and by the Palpebrae. The back Part of the Globe, the Optic Nerve, and Muscles, are surrounded by a soft fatty Substance, which fills the rest of the Bottom of the Orbit.

The Humours are three in Number, the Aqueous, Vitreous, and Crystalline: The first may properly be called an Humour, and is contained in a Space formed in the Interstices of the anterior Portion of the Coats. The second, or Vitreous Humour, is contained in a particular membranous Capsula, and fills above three Fourths of the Shell, or Cavity of the Globe of the Eye. It has been named Vitreous, from its supposed Resemblance to melted Glass, but it is really more like the White of a new-laid Egg.

The Crystalline Humour is so called, from its Resemblance to Crystal; and is often named, simply, the Crystalline. It is rather a gummy Mass, than an Humour, of a lenticular Form, more convex on the back than on the fore Side, and contained in a fine Membrane, called Membrana, or Capsula Crystallina.

#### THE COATS OF THE EYE IN PARTICULAR.

The most external, thickest, and strongest Coat of the Eye, is the Sclerotica, or Cornea; and it invests all the other Parts of which the Globe is composed: It is divided into two Portions,

one called Cornea Opaca, the other Cornea Lucida, which is only a small Segment of a Sphere, situated anteriorly.

The Cornea Opaca is made up of several Strata, closely connected together; and is of an hard compact Texture, resembling Parchment. About the Middle of its posterior convex Portion, where it sustains the Optic Nerves, it is in a manner perforated, and thicker than any-where else, its Thickness diminishing gradually toward the opposite Side; and its Substance is penetrated obliquely in several Places by small Blood-vessels. The Course of the nervous Filaments through this Coat is very singular; they enter the convex Side at some Distance from the Optic Nerve, and, running thence through its Substance, they pierce the concave Side, near the Cornea Lucida.

The Cornea Lucida, called, likewise, simply, Cornea, the opaque Portion being named Sclerotica, is made up, in the like manner, of several Strata, or Laminae, closely united; and appears to be a Continuation of the opaque Portion, or Sclerotica, though of a different Texture. When macerated in cold Water, it swells.

This Portion is something more convex than the Cornea Opaca, so that it represents the Segment of a small Sphere, added to the Segment of a greater; but this Difference is not equally great in all Persons. The Circumference of the convex Side is not circular, as that of the concave Side, but transversely oval; for the superior and inferior Portions of the Circumference terminate obliquely; but this Obliquity is more apparent in Oxen and Sheep, than in Man.

The Cornea Lucida is perforated by a great Number of imperceptible Pores, through which a very fine Fluid is continually discharged, which soon afterwards evaporates; but we discover it evidently, by pressing the Eye soon after Death, having first wiped it very clean; for we then see a gradual Collection of a very subtle Liquor, which forms itself into little Drops; and this Experiment may be several times repeated on the same Subject. It is this Dew that forms a kind of Pellicle on the Eyes of dying Persons, which sometimes cracks soon after.

The second Coat of the Globe of the Eye is the Choroides; which is of a blackish Colour, more or less inclined to red, and adheres, by reason of a great Number of small Vessels, to the Cornea Opaca from the Insertion of the Optic Nerve, all the Way to the Union of the two Cornea, where it leaves the Circumference of the Globe, and forms a perforated Septum, by which the small Segment of the Globe is separated from the greater. This Portion goes commonly by the particular Name of Uvea, which was formerly given to the whole second Coat; and as it is of different Colours in several Subjects, it has likewise got the Name of Iris; which Term, however, agrees more precisely to the coloured Surface of this Portion, and, would even be very improper for this Surface, in Persons where it is uniformly brown, black, or blackish.

The external Lamina of the Choroides is stronger than the internal, and both appear blackish, because of their Transparency. At a very small Distance from the Union of the two Cornea, this Lamina is most closely united to the Cornea Opaca. Round this Adhesion it changes Colour, and forms a whitish Ring of the same Breadth with the Adhesion; and near the Edge of the Sclerotica, this Ring is stronger, and of different Texture from what it is any-where else. It adheres so closely to the Sclerotica, that if we blow through a small Hole made therein, without touching the Choroides, the Air will penetrate every-where between the two Coats, but cannot destroy this Adhesion, or pass to the Cornea Lucida. This Adhesion has been improperly named Ligamentum Ciliare. On the inner Surface of this Lamina, we discover a great Number of flat Lines in a vortical Disposition, which are the Vessels named by *Steno* Vasa Vorticosa, or Vortices Vasculosi, of which hereafter.

The internal Lamina of the Choroides is thinner than the external, and its Surface, together with the corresponding Surface of the other Lamina, is covered by a blackish Substance with some Mixture of Red, which easily separates when touched, and immediately tinges the Water in which the Choroides is dipt. The Origin of this Substance has not as yet been discovered; but, after a nice anatomical Injection, I have observed a great Number of vascular Stars on the inner Surface of this Lamina. In M. *Ruych's* Works, it is termed *Membrana Ruychiana*.

The anterior Portion, or perforated Septum of the Choroides, has the Name of Uvea; and the Hole near the Centre of this Septum is called Pupilla. The anterior Lamina of the same Septum is termed Iris, and the radiated Plicae of the posterior Lamina, Processus Ciliares. Between the two Laminae of the Uvea, we find two very thin Planes of Fibres, which appear to be fleshy; the Fibres of one Plane being orbicular, and lying round the Circumference of the Pupilla, and those of the other being radiated, one Extremity of which is fixed to the orbicular Plane, the other to the great Edge of the Uvea.

The



The Plicæ, or Processus Ciliares, are small radiated and prominent Duplicatures of the posterior Lamina of the Uvea; and their Circumference answers partly to that of the white Ring of the external Lamina. They are oblong thin Plates; their posterior Extremities, or those next the Choroides, being very fine and pointed; the others, or those next the Pupilla, broad, prominent, and ending in acute Angles. In the Duplicature of each Ciliary Fold, we find a fine reticular Texture of Vessels; and some pretend to have seen fleshy Fibres in the same Place, lying in small Grooves of the Membrana Vitrea, as we shall see hereafter.

The Space between the Cornea Lucida and Uvea contains the greatest Part of the aqueous Humour, and communicates by the Pupilla with a very narrow Space behind the Uvea, or between that and the Crystalline. These two Spaces have been termed, *The Two Chambers of the aqueous Humour*, one anterior, the other posterior, as I shall observe in describing this Humour in particular.

The third Coat of the Eye is of a very different Texture from that of the other two Coats. It is white, soft, and tender, and, in a manner, medullary, or like a kind of Paste spread upon a fine reticular Web. It appears to be thicker than the Choroides, and reaches from the Insertion of the Optic Nerve to the Extremities of the Ciliary Radii, being equally fixed to the Choroides through its whole Extent. At the Place which answers to the Insertion of the Optic Nerve, we observe a small Depression, in which lies a sort of medullary Button terminating in a Point; and from this Depression Blood-vessels go out, which are ramify'd on all Sides through the Substance of the Retina.

It is commonly said, that the Retina is a Production, or Expansion, of the medullary Substance of the Optic Nerve, the Sclerotica of the Dura Mater, and the Choroides of the Pia Mater, which accompanies this Nerve. But this Opinion is not agreeable to what we observe in examining the Optic Nerve, and its Insertion in the Globe of the Eye. If we take a very sharp Instrument, and divide this Nerve through its whole Length, between where it enters the Orbit, and where it enters the Globe, into two equal lateral Parts, and then continue this Section through the Middle or Centre of its Insertion, the following Phenomena will appear:

That the Nerve contracts a little at its Insertion into the Globe; that its outer Covering is a true Continuation of the Dura Mater; that this Vagina is very different from the Sclerotica, both in Thickness and Texture, the Sclerotica being thicker than the Vagina, and of another Structure; that the Vagina from the Pia Mater forms, through the whole medullary Substance of the Nerve, several very fine cellular Septa; and that, where it enters the Globe of the Eye, the Pia Mater does not directly answer to the Choroides:

Lastly, that, as the medullary Substance of the Nerve enters the Globe, it is very much contracted, and seems to terminate only in the small Tubercle, or Button, already mentioned; and that the Retina is too thick to be taken for an Expansion of the medullary Substance at this Place.

The Insertion of the Optic Nerve in the Globe of the Eye, is most commonly not directly opposite to the Pupilla; so that the Distance between these two Parts is not the same, when measured, on all Parts of the Globe. The greatest Distance is often on the Side next the Temples, and the smallest next the Nose. I have observed an Inequality of the same Kind in the Breadth of the Uvea, which, in many Subjects, is less near the Nose than the Temples; so that the Centre of the Pupilla is not the same with that of the great Circumference of the Iris; and I have seen the same Difference in the Breadth of the Corona Ciliaris.

#### THE HUMOURS OF THE EYE, AND THEIR CAPSULÆ.

The vitreous Humour is a clear and very liquid gelatinous Fluid, contained in a fine transparent Capsula, called *Tunica Vitrea*, together with which it forms a Mass nearly of the Consistence of the White of an Egg. It fills the greatest Part of the Globe of the Eye, that is, almost all that Space which answers to the Extent of the Retina, except a small Portion behind the Uvea, where it forms a Fossula, in which the Crystalline is lodged. This Humour, being dexterously taken out of the Globe, preserves its Consistence for some time in the Capsula, almost like the White of an Egg; and then runs off, by little and little, till it quite disappears.

The Tunica Vitrea is composed exteriorly of two Laminæ very closely connected, which quite surround the Mass of Humour, and are immediately apply'd to the Retina all the Way to the great Circumference of the Corona Ciliaris; but from thence to the circular Edge of the Fossula of the Crystalline, this Coat is full of radiated Sulci, which contain the Processus Ciliares of the Uvea. At the Edge of the Fossula, the two Laminæ separate, and form a particular Capsula, which belongs to the Crystalline, as we shall see hereafter.

The internal Lamina of the Tunica Vitrea gives off, through the whole Substance of this Humour, a great Number of cellular Elongations, or Septa, so extremely fine, as not at all to be visible in the natural State, the whole Mass appearing then to be uniform, and equally transparent through its whole Substance; but they are discovered by putting the Whole, soon after 'it is taken out of the Body, into some acedent and gently coagulating Liquor.

The radiated Sulci of the Tunica Vitrea, which may be termed *Sulci Ciliares*, are perfectly black, when the Coat is taken out of the Body: This proceeds from the black Substance with which the Laminæ, or Processus Ciliares, are naturally covered, as well as all the rest of the Choroides, and which remains in the Bottom of the Sulci, after the Laminæ have been taken out. We observe very fine Vessels in this Humour, which shall be spoken to hereafter.

The Crystalline is a small lenticular Body, of a pretty firm Consistence, and transparent like Crystal. It is contained in a transparent membranous Capsula, and lodged in the anterior Fossula of the vitreous Humour. It is very improperly called an *Humour*, because it may be handled and moulded into different Shapes by the Fingers, and sometimes almost dissolved by different reiterated Compressions, especially when taken out of the Capsula.

The Figure of the Crystalline is lenticular; but its posterior Side is more convex than the anterior, the Convexity of both Sides being very rarely equal. The internal Structure of this Mass has not been hitherto sufficiently discovered, to be described with Certainty, especially in Man; where I could never find that contorted Disposition of crystalline Tubes, which some pretend to have seen in the Eyes of large Animals.

The Colour and Consistence of the Crystalline varies in different Ages, as was discovered by Mr. *Petit*, and demonstrated by him, in the *Academy of Sciences*, from a great Number of human Eyes; and his Observations are inserted in the *Memoirs* for 1726. Till the Age of Thirty it is very transparent, and almost without any Colour. It afterwards becomes yellowish, and that Yellowness gradually increases. The Consistence varies almost in the same Manner, being of an uniform Softness till the Age of Twenty, and afterwards growing gradually more solid in the Middle of the Mass; but in this there are Varieties explain'd in the *Memoirs* for 1727.

The Crystalline Capsula, or Coat, is formed by a Duplicature of the Tunica Vitrea, as I have already said. The external Lamina covers the anterior Side of the crystalline Mass; the internal Lamina covers the back Side, and likewise the Fossula Vitrea, in which the Crystalline is lodged. The anterior Portion of the Crystalline Capsula is thicker than the posterior, and, in a manner, elastic; and both its Thickness and Elasticity may be discovered in Dissection, without any other Artifice.

The anterior Portion swells when macerated in Water; and then appears to be made up of two Pellicles, united by a fine spongy Substance. I demonstrated this Duplicature very plainly in the Eye of an Horse, by the Knife alone; and I even carried the Separation of the two Laminæ as far as the vitreous Coat. Having made a small Hole in the Middle of the Capsula of an Ox's Eye, and blown into it through a Pipe, some Part of the Air remained between the Edge of the Crystalline Mass, and that of the Capsula, in the Form of a transparent Circle.

In examining the human Eye, I have found, that the Retina, having reached the great Circumference of the Corona Ciliaris, becomes very thin, and is continued between the Laminæ, or Processus Ciliares of the Uvea, and the Ciliary Sulci of the Tunica Vitrea, all the Way to the Circumference of the Crystalline. It is, perhaps, this Continuation which makes the Processus Ciliares to be covered by a whitish Pellicle, and likewise increases the Thickness of the anterior Portion of the Capsula Crystallina.

The aqueous Humour is a very limpid Fluid resembling a kind of Lymph or Serum, with a very small Degree of Viscidity; and it has no particular Capsula like the Crystalline and vitreous Humours. It fills the Space between the Cornea Lucida and Uvea, that between the Uvea and the Crystalline, and the Hole of the Pupilla. These two Spaces are called *The Chambers of the aqueous Humour*, and they are distinguished into the anterior and posterior.

These two Chambers are not of the same Extent. The anterior, which is visible to every body, between the Cornea Lucida and Uvea, is the largest; the other, between the Uvea and Crystalline, is very narrow, especially near the Pupilla, where the Uvea almost touches the Crystalline. This Proportion between the two Chambers has been sufficiently proved, contrary to the Opinion of many ancient Writers, by *Heister*, *Morgagni*, and several Members of the *Royal Academy*; but none has treated these Matters at so great a Length as Mr. *Petit*, in the *Memoirs* of that Society.



## THE TUNICA ALBUGINEA, AND MUSCLES OF THE GLOBE OF THE EYE.

The Tunica Albuginea, called commonly *The White of the Eye*, and which appears on all the anterior convex Side of the Globe, from the Cornea Lucida to the Beginning of the posterior Side, is formed chiefly by the tendinous Expansion of four Muscles, in the manner presently to be described. This Expansion adheres very close to the Sclerotica, and makes it appear very white and shining, whereas the rest of it is of a dull-whitish Colour. It is very thin near the Edge of the Cornea, in which it seems to be lost, terminating very uniformly.

There are commonly six Muscles inserted in the Globe of the Eye, and they are divided, on account of their Direction, into four Recti, and two Obliqui. The Recti are again divided from their Situation into superior, inferior, internal, and external; and, from their Functions, into a Levator, Depressor, Adductor, and Abductor. The two oblique Muscles are denominated from their Situation and Size, one being named *Obliquus Superior*, or *Major*; the other, *Obliquus Inferior*, or *Minor*. The *Obliquus Major* is likewise called *Trochlearius*, because it passes through a small cartilaginous Ring, as over a Trochlea, or Pulley.

The Musculi Recti do not altogether answer to that Name; for, in their natural Situation, they do not all lie in a strait Direction, as they are commonly represented in an Eye taken out of the Body. To understand this, we ought to have a just Idea of the Situation of the Globe in the Orbit, and at the same time to remember the Obliquity of the Orbits, as already explain'd. The Globe is naturally placed in such a manner, as that, during the Inaction or Equilibrium of all the Muscles, the Pupilla is turned directly forward; the inner Edge of the Orbit is opposite to the Middle of the Inside of the Globe; the outer Edge of the Orbit, because of its Obliquity, is behind the Middle of the Outside of the Globe; and, lastly, the greatest Circumference of the Convexity of the Globe, between the Pupilla and the Optic Nerve, runs directly inwards and outwards, upwards and downwards.

In this Situation, the internal Rectus alone is in a strait Direction, the other three being oblique; and the external Rectus is the longest; the internal is the shortest; and, between these two, the superior and inferior are of a middle Length, and equal. The external Rectus is likewise bent round the outer convex Side of the Globe; the superior and inferior are, also, incurvated, but in a less Degree, whereas the whole Internus is almost strait. Notwithstanding all this, I shall continue to give them all the common Name of *Musculi Oculi Recti*.

These Muscles are fixed by their posterior Extremities at the Bottom of the Orbit near the Foramen Opticum, in the Elongation of the Dura Mater, by short narrow Tendons, in the same Order in which I have already named them. From thence they run wholly fleshy, toward the great Circumference of the Convexity of the Globe, between the Optic Nerve and Cornea Lucida, where they are expanded into flat broad Tendons, which touch each other, and afterwards unite. These Tendons are fixed, first of all, by a particular Insertion, in the Circumference just mentioned, and afterwards continue their Adhesion all the Way to the Cornea, forming the Tunica Albuginea, as has been already said.

The superior oblique Muscle is fixed to the Bottom of the Orbit, by a narrow Tendon, in the same manner as the Recti, between the Rectus superior and Internus. From thence it runs on the Orbit opposite to the Interstice between these two Muscles, toward the internal angular Apophysis of the Os Frontis, where it terminates in a thin Tendon, which, having passed through a kind of Ring as over a Pulley, runs afterwards in a Vagina obliquely backward under the Rectus Superior, that is, between that Muscle and the Globe; and, increasing in Breadth, it is inserted posteriorly and laterally in the Globe, near the Rectus Externus.

The Ring through which this Muscle passes, is partly cartilaginous, and partly ligamentary. The cartilaginous Portion is flat, of a considerable Breadth, and like half a Ring. The ligamentary Portion adheres strongly to the two Ends of the Cartilage, and is fixed in the small Fossula which lies in the Orbit, on the angular Apophysis of the Os Frontis. By means of this Ligament, the Ring is in some measure moveable, and yields to the Motions of the Muscle. To the anterior Edge of the Ring a ligamentary Vagina is fixed, which invests the Tendon all the Way to its Insertion in the Globe.

The *Obliquus Inferior* is situated obliquely at the lower Side of the Orbit, under the Rectus Inferior, which consequently lies between this Muscle and the Globe. It is fixed by one Extremity a little tendinous, to the Root of the nasal Apophysis of the Os Maxillare near the Edge of the Orbit, between the Opening of the Ductus Nasalis, and the inferior orbitary Fissure.

Thence it passes obliquely, and a little transversely, backward, under the Rectus Inferior; and is fixed in the posterior lateral Part of the Globe by a flat Tendon, opposite to, and at a small Distance from, the Tendon of the *Obliquus Superior*; so that these two Muscles, in some measure, surround the outer posterior Part of the Globe.

The Rectus Superior moves the anterior Portion of the Globe upward, when we lift up the Eyes; the Rectus Inferior carries this Portion downward; the Internus toward the Nose; and the Externus toward the Temples.

When two neighbouring Recti act at the same time, they carry the anterior Portion of the Globe obliquely toward that Side, which answers to the Distance between these two Muscles; and, when all the four Muscles act successively, they turn the Globe of the Eye round, which is what is called *rolling the Eyes*.

It is to be observed, that all these Motions of the Globe of the Eye are made round its Centre, so that, in moving the anterior Portion, all the other Parts are likewise in Motion. Thus, when the Pupilla is turned toward the Nose, or upward, the Insertion of the Optic Nerve is at the same time turned toward the Temple, or downward.

The Use of the oblique Muscles is principally to counter-balance the Action of the Recti, and to support the Globe in all the Motions already mentioned. This is evident from their Insertions, which are in a contrary Direction to those of the Recti, their fixed Points, with relation to the Motions of the Globe, being placed forward, and those of the Recti backward, at the Bottom of the Orbit. The soft Fat, which lies behind the Globe, is altogether insufficient to support it; neither is the Optic Nerve more fit for this Purpose; for I have shewn, that this Nerve follows all the Motions of the Globe, which would be impossible, were not the Fat very pliable, and without Resistance. And to this we must add, that the Optic Nerve, at its Insertion in the Globe, has a particular Curvature, which allows it to be elongated, and consequently prevents it from suffering any Violence in the different Motions of the Eyes.

The Obliquity of these two Muscles does not hinder them from doing the Office of a Fulcrum, because this is not a Fulcrum distinct from the Part moved, or on which the Globe of the Eye slides like the Head of one Bone in the articular Cavity of another; but, being fixed to the Part, it easily accommodates itself to all the Degrees of Motion thereof. Had these Muscles lain in a strait Direction, they would have incommoded the Recti; but their Obliquity may be, in some measure, rectified by the inner Surface of the Orbit, and by the Rectus Externus.

The inner Surface of the Orbit serves for a kind of collateral Fulcrum, which hinders the Globe from falling too far inward; as the joint Action of the two Obliqui prevents it in part from falling too far outward. The Rectus Externus, by being bent on the Globe, not only hinders it from being carried outward, but, also, prevents the indirect Motions of the Obliqui from thrusting it out of the Orbit toward the Temples. The other Uses attributed to these Muscles seem to me to be without Foundation, from the Consideration of their Insertion, and of the Structure of the Parts with which they are concerned; both which Reasons are explained in the Memoirs of the Academy for 1721.

## THE SUPERCILIA, AND MUSCULI FRONTALES, OCCIPITALES, AND SUPERCILIARES.

The Supercilia, or Eye-brows, are the two hairy Arches situated at the lower Part of the Forehead, between the Top of the Nose and Temples, in the same Direction with the bony Arches, which form the superior Edges of the Orbits. The Skin in which they are fixed, does not seem to be much thicker than that of the rest of the Forehead; but the Membrana Adiposa is thicker than on the neighbouring Parts. The Extremity of the Eye-brows next the Nose, is called the *Head*, as being larger than the other Extremity, which is named their *Tail*. The Colour is different in different Persons, and often in the same Person different from that of the Hair of the Head; neither is the Size of them always alike. The Hairs of which they consist are strong and pretty stiff, and they lie obliquely, their Roots being turned to the Nose, and their Points to the Temples.

The Supercilia have Motions common to them with those of the Skin of the Forehead, and of the hairy Scalp. By these Motions the Eye-brows are lifted up, the Skin of the Forehead is wrinkled more or less regularly and transversely; and the Hair, and almost the whole Scalp, is moved, but not in the same Degree in all Persons; for some, by this Motion alone, can move the Hat, and even throw it from their Head. The Eye-brows have likewise particular Motions, which contract the Skin



above the Nose; and all these different Motions are performed by the following Muscles.

The Frontal Muscles are two thin, broad, fleshy Planes, of unequal Lengths, lying immediately behind the Skin and the Membrana Adiposa on the anterior Parts of the Forehead, which Parts they cover from the Root of the Nose, and through about Two-thirds of the Arch of the Eye-brows on each Side, all the Way to the lateral Parts of the Hair on the Forehead. At the Root of the Nose they touch each other, as if they were but one Muscle; and at this Place their Fibres are short and longitudinal, or vertical.

The next Fibres on each Side become gradually longer, and more oblique, the most anterior being always the shortest and straightest; and the lateral, the longest, and turned most obliquely towards the Temples at their upper Extremities. By this Disposition an angular Interstice is formed between the Place where the two Muscles join, and the Hair on the Middle of the Forehead; but this Disposition is not the same in all Subjects, no more than the Wrinkles and Bounds of the Hair on the Forehead.

These Muscles are fixed by the inferior Extremities of their fleshy Fibres immediately in the Skin, running through the Membrana Adiposa. They cover the Musculi Superciliares, and adhere closely to them by a kind of Intertexture. By the same Fibres they seem to be inserted in the angular Apophyses of the Os Frontis, and to be blended a little with the Muscles of the Palpebræ and Nose. The upper Extremities of their fleshy Fibres are fixed in the external, or convex Surface of the Pericranium. Each of their lateral Portions covers a Portion of the Temporal Muscle on the same Side, and adheres very closely to it. The superior and inferior Insertions are graduated.

The occipital Muscles are two small, thin, broad, and very short fleshy Planes, situated on the lateral Parts of the Occiput at some Distance from each other. They are inserted by the inferior Extremities of their fleshy Fibres in the superior transverse Line of the Os Occipitis, and, also, a little above it. Thence they run up obliquely from behind forward, and are fixed in the inner or concave Surface of the Pericranium.

The Breadth of these Muscles reaches from the posterior middle Part of the Occiput, toward the Mastoide Apophysis, and they diminish unequally in Length as they approach these Apophyses. From this Inequality in Length, each of them appears as if it were double in some Subjects; and, in others, they are so thin and pale, that they seem to be wanting. They are sometimes covered by an aponeurotic Expansion of the Trapezii.

The Occipital and Frontal Muscles appear to be true Digastrici, both with regard to their Insertions in the Pericranium, and in regard to their Action. Their Insertions in the Pericranium are opposite, one being on the Outside, the other on the Inside; so that this Membrane, or Aponeurosis, may be considered as a middle Tendon of four single Muscles, that is, which have their fleshy Fibres fixed only to one Side of their Tendons. The fixed Insertions of the Occipitales at the lower Part of the Occiput, and the moveable Insertions of the Frontales in the Skin of the Forehead, and of the Supercilia, being well considered, together with their reciprocal Insertions in the same Aponeurosis, seem to be a very convincing Proof, that they are Digastric Muscles.

These four Muscles seem always to act in Concert, the Occipitales being only Auxiliaries, or Assistants to the Frontales, the Office of which is to raise the Supercilia, by wrinkling the Skin of the Forehead; these Wrinkles follow the Direction of the Eye-brows pretty regularly in some Subjects, and very irregularly in others.

To be convinced of the Co-operation of these four Muscles, we need only hold the Hand on the Occipitales, while we raise the Eye-brows, and wrinkle the Forehead several times; and we shall perceive the Occipitales to move each time, though not in the same Degree in all Subjects. In some Persons the Occipitales seem to be relaxed, while the Frontales, being in Contraction, move the whole Scalp and Pericranium forward, and then contract to bring them back to their natural Situation.

The Musculi Superciliares are fleshy Fasciculi, situated behind the Supercilia, and behind the inferior Portion of the Musculi Frontales, from the Root of the Nose to above one half of each superciliary Arch. They are strongly inserted partly in the Synarthrosis of the Ossa Nasi with the Os Frontis, where they come very near the proper Muscles of the Nose, and partly in a small neighbouring Portion of the Orbit. From thence they first run up a little, and afterwards more or less in the Direction of the Eye-brows. They are made up of several small Fasciculi of oblique Fibres, all fixed by one End in the manner already said, and by the other partly in the lower

Extremity of the Muscles, by which they are covered, and partly in the Skin of the Supercilia. This last Portion is easily confounded with a Portion of the Musculus Orbicularis Palpebrarum.

The Action of these Muscles is to depress the Eye-brows, to bring them close together, and to contract the Skin of the Forehead immediately above the Nose, into longitudinal and oblique Wrinkles, and the Skin which covers the Root of the Nose into irregular transverse Wrinkles. This Action, as well as that of the Frontales, and of the Muscles of the Nose and Lips, is not always arbitrary, but sometimes mechanical and involuntary. These Muscles may, perhaps, likewise serve to keep the Musculi Frontales in Equilibrio during their Inaction, they being moveable by both Extremities.

#### THE PALPEBRÆ, AND MEMBRANA CONJUNCTIVA.

The Palpebræ are a kind of Veils or Curtains placed transversely above and below the anterior Portion of the Globe of the Eye; and accordingly there are two Eye-lids to each Eye, one superior, the other inferior. The superior is the largest and most moveable in Man, the inferior the smallest and least moveable. They both unite at each Side of the Globe, and the Places of their Union are termed *Angles*, one large, and internal, which is next the Nose; the other small, or external, which is next the Temples.

The Palpebræ are made up of common and proper Parts. The common Parts are the Skin, Epidermis, and Membrana Adiposa. The proper Parts are the Muscles, the Tarfi, the Puncta or Foramina Lachrymalia, the Membrana Conjunctiva, the Glandula Lachrymalis, and the particular Ligaments which sustain the Tarfi. The Tarfi, and their Ligaments, are, in some measure, the Basis of all these Parts.

The Tarfi are thin Cartilages forming the principal Part of the Edge of each Palpebra; and they are broader at the Middle, than at the Extremities. Those of the superior Palpebræ are something less than half an Inch in Breadth; but in the lower Palpebræ they are not above the sixth Part of an Inch; and their Extremities next the Temples are more slender than those next the Nose.

These Cartilages are suited to the Borders and Curvature of the Eye-lids. The lower Edge of the superior Cartilage, and the upper Edge of the inferior, terminate equally, and both may be termed the *Ciliary Edges*. The opposite Edge of the upper Tarsus is something semicircular between its two Extremities; but that of the inferior Tarsus is more uniform, and both are thinner than the Ciliary Edges. Their inner Sides, or those next, are grooved by several small transverse Channels, of which hereafter; and the Extremities of both Cartilages are connected by a kind of small Ligaments.

The broad Ligaments of the Tarfi are membranous Elongations formed by the Union of the Periosteum of the Orbits, and Pericranium, along both Edges of each Orbit. The superior Ligament is broader than the inferior, and fix'd to the superior Edge of the upper Cartilage, as the inferior is to the lower Edge of the lower Cartilage; so that these Ligaments, and the Tarfi, taken alone, or without, the other Parts, represent Palpebræ.

The Membrana Conjunctiva is generally described among the Coats of the Globe of the Eye; and I, also, mentioned it there. It is a thin Membrane, one Portion of which lines the inner Surface of the Palpebræ, that is, of the Tarfi, and their broad Ligaments. At the Edge of the Orbit it has a Fold, and is continued from hence on the anterior Half of the Globe of the Eye, adhering to the Tunica Albuginea; so that the Palpebræ, and the fore Part of the Globe of the Eye, are covered by one and the same Membrane, which does not appear to be a Continuation of the Pericranium, but has some Connection with the broad Ligaments of the Tarfi.

The Name of *Conjunctiva* is commonly given only to that Part which covers the Globe, the other being called simply, *The Internal Membrane of the Palpebræ*; but we may very well name the one *Membrana Oculi Conjunctiva*, and the other *Membrana Palpebrarum Conjunctiva*. That of the Palpebræ is a very fine Membrane, adhering very close, and full of small capillary Blood-vessels. It is perforated by numerous imperceptible Pores, through which a kind of Serum is continually discharged; and it has several very evident Folds, which shall be spoken to hereafter.

The Conjunctiva of the Eye adheres by the Intervention of a cellular Substance, and is consequently loose, and, as it were, moveable; and it may be taken hold of, and separated, in several Places, from the tendinous Coat. It is of a whitish Colour, and, being transparent, the Albuginea makes it appear perfectly white; these two Coats together forming what is called *The White of the Eye*. The greatest Part of the numerous Vessels which run upon it, contain naturally only the serous Part of the Blood, and consequently are not discoverable, except



except by anatomical Injections, Inflammations, Obstructions, and the like. With the Point of a good Knife we continue the Separation of this Membrane over the Cornea Lucida.

The Lachrymal Gland is white, and of the Number of those called Conglomerate Glands. It lies under that Depression observable in the Arch of the Orbit, near the Temples, and laterally above the Globe of the Eye.

It is a little flattened, and divided, as it were, into two Lobes, one of which lies toward the Insertion of the Musculus Rectus superior; the other toward the Rectus externus. It adheres very closely to the Fat which surrounds the Muscles, and posterior Convexity of the Eye; and it was formerly named Glandula Innominata.

From this Gland several small Ducts go out, which run down almost parallel to each other, through the Substance of the Tunica Interna, or Conjunctiva of the superior Palpebra, and afterwards pierce it inwardly, near the superior Edge of the Tarsus. These Ducts are very difficult to be found; but the best way to discover them is to let the superior Palpebra lie a little while in cold Water, and then, without wiping it, to blow on several Places of the Surface of the Membrane, through a small Tube held very near, but so as not to touch it, that the Air may fill some of the Orifices of the Ducts, and so discover them.

The Borders of each Palpebra, taken all together, are formed by the Edge of the Tarsus, and by the Union of the internal Membrane with the Skin and Epidermis. This Border is flat, and of some sensible Breadth from within about a Quarter of an Inch of the internal Angle all the Way to the external Angle, near which the Breadth diminishes. This Breadth is owing only to the Thickness of the Palpebræ, which at this Place have their Edges oblique or slanting, in such a manner as, when the two Palpebræ touch each other slightly, a triangular Space or Canal is formed between them and the Globe of the Eye.

The flat Edge of each Palpebra is adorned with a Row of Hairs, called Cilia, or Eye-lashes. Those belonging to the superior Palpebra are bent upward, and longer than those of the lower Palpebra, which are bent downward. These Rows are placed next the Skin, and are not single, but irregularly double or triple. The Hairs are longer near the Middle of the Palpebra than toward the Extremities, and for about a Quarter of an Inch from the inner Angle, they are quite wanting.

Along the same Border of the Palpebræ near the internal Membrane, or toward the Eye, we see a Row of small Holes, which may be named Foramina, or Puncta Ciliaria. They are the Orifice of the same Number of small oblong Glands, which lie in the Sulci, Channels, or Grooves, on the inner Surface of the Tarsus. These little Glands are of a whitish Colour, and, when examined through a single Microscope, they appear like Bunches of Grapes, those of each Bunch communicating together. When they are squeezed between two Nails, a sebaceous Matter, like soft Wax, is discharged through the Puncta Ciliaria.

Near the great or internal Angle of the Palpebræ, the flat Portion of their Edges terminates in another, which is rounder and thinner. By the Union of these two Edges an Angle is formed, which is not perfectly pointed like a true Angle, but rounded; yet it ought not to be termed an obtuse Angle, because that Expression in the mathematical Style means something different. For the same Reason the Name of great Angle is improper; and we had better call it the internal or nasal Angle.

At this Place, the Extremity of the flat Portion is distinguished from the round Portion by a small Protuberance or Papilla, which is obliquely perforated by a small Hole in the Edge of each Palpebra. These two small Holes are very visible, and often more so in living than in dead Bodies; and they are commonly named Puncta Lachrymalia, being the Orifices of two small Ducts, which open beyond the Angle of the Eye into a particular Reservoir, termed Sacculus Lachrymalis, which is described under the Article NASUS.

The Puncta Lachrymalia are opposite to each other, and so they meet when the Eye is shut. Round the Orifice of each of these Points, we observe a whitish Circle, which seems to be a cartilaginous Appendix of the Tarsus, and which keeps the Orifice always open. These two oblique Circles are so disposed, that, when the Eye is but slightly shut, they touch each other only toward the Skin, and not toward the Globe of the Eye. The fine Membrane which covers these Circles, and passes through the Puncta into the Ducts, seems sometimes to run into Gathers, when it is touched with a Stilet.

The Caruncula Lachrymalis is a small, redish, granulated, oblong Body, situated precisely between the internal Angle of the Palpebræ, and Globe of the Eye; but it is not fleshy, as its Name would insinuate. The Substance of it seems to be wholly glandular; and it appears through a single Microscope, in the same manner as the other Conglomerate Glands. We discover upon it a great Number of fine Hairs, covered by an oily yellowish Matter; and on the Globe of the Eye, near this glan-

dular Body, we see a semilunar Fold formed by the Conjunctiva, the concave Side of which is turned to the Uvea, and the Convex Side to the Nose. This Fold appears most when the Eye is turned toward the Nose.

The Muscles of the Palpebræ are commonly reckoned to be two, one peculiar to the upper Eye-lid, named Levator Palpebræ Superioris; the other common to both, called Musculus Orbicularis Palpebrarum, which has been subdivided in different manners.

The Levator Palpebræ superioris is a very thin Muscle situated in the Orbit above and along the Rectus superior Oculi. It is fixed to the Bottom of the Orbit, by a small narrow Tendon, near the Foramen opticum, between the posterior Insertions of the Rectus superior, and Obliquus superior. Thence its fleshy Fibres run forward on the Rectus, increasing gradually in Breadth; and terminate by a very broad Aponeurosis, in the Tarsus of the superior Palpebra.

By the Musculus Palpebrarum obliquus, we understand all that Extent of fleshy Fibres, which by a thin Stratum surrounds the Edge of each Orbit, and from thence, without any Interruption, covers the two Palpebræ all the Way to the Cilia. The Fibres which run upon the Edge of the Orbit are nearly orbicular; but most of those which cover the Palpebræ are transversely oval. Almost all of them have a common Tendon situated transversely between the internal Angle of the Eye, and the nasal Apophysis of the Os Maxillare. This is a slender ligamentary Tendon, strongest where it is fixed in the Bone, and diminishing gradually as it approaches the Angle of the Palpebræ, where it terminates at the Union of the Points, or at the Extremities of the two Tarsi. The fleshy Fibres are fixed to it anteriorly, so that at first Sight it appears to be no more than a Linea Alba.

From thence one Portion of the Fibres is turned upward, the other downward; and both meet again at the external Angle, being united by a particular kind of Intertexture, very difficult to be explained; when, having inverted this Portion of the Muscle, we examine its posterior Surface, we observe a small, thin, tendinous Rope, which runs through the fleshy Fibres, and divides them all the Way from the Union of the two Tarsi to the Temporal Edge of the Orbit, where it disappears; the Fibres which lie beyond it appearing to continue the main Circuit of the Muscle.

I divide this Muscle into four Portions, whereof the first is that which surrounds the Orbit, and which does not appear to be interrupted towards the Temples, the upper Part of it lying between the Supercilia, and the lower Part of the Musculi Frontales. The second Portion is that which lies between the upper Edge of the Orbit, and the Globe of the Eye, and which covers the inferior Edge of the Orbit below, some of its Fibres being fixed to both Edges of the Orbit. *Riolanus* divided this into two semicircular Portions, one superior, the other inferior; the first lying between the Musculus Superciliaris and the lower Part of the Musculus Frontalis, to both which it adheres very much.

The third Portion seems to belong more particularly to the Palpebræ, and the greatest Part of it is spent in the Palpebra superior. The Fibres of this Portion meet at the two Angles of the Eye, where they appear to make very acute Inflections without any Discontinuation; but when examined on the other Side next the Globe of the Eye, they have in some Subjects appeared to me to be distinguished into superior and inferior. The greatest Part of these Fibres form a transversely oval Circumference, the shortest Diameter of which is longer when the Eyes are open, than when shut.

The fourth Portion is an Appendix to the third, from which it differs principally in this, that its Fibres do not reach to the Angles, and form only small Arches, the Extremities of which terminate in each Palpebra. This Portion is really divided into two, one for the Edge of the upper Eye-lid, the other for that of the lower. *Riolanus* names this Portion Musculus Ciliaris.

All these different Portions of the Orbicular Muscle adhere to the Skin, which covers it from the upper Part of the Nose to the Temples, and from the Supercilium to the upper Part of the Cheek. When they contract, several Wrinkles are formed in the Skin, which vary according to the different Direction of the Fibres; those under the lower Palpebra are very numerous, and run down very obliquely from before backward.

The Skin of the superior Palpebra is folded Arch-wise, almost in a parallel Direction to that of the semi-oval Fibres, the Plicæ intersecting the Levator; whereas the other Folds only intersect the Orbicularis. The radiated and oblique Plicæ seldom appear in young Persons, except when the first and second Portions of the Orbicularis are in Action; but in aged Persons the Marks thereof are visible at all times.

In Man, the superior Palpebra has much more Motion than the inferior. The small simple Motions called Twinkling, which frequently happen, though not equally often, in all Subjects, are performed in the upper Palpebra, by the alternate



Contraction of the Levator and superior Palpebral Portion of the Musculus Orbicularis; and in the lower Palpebra, at the same time, or alternately, by the inferior palpebral Portion of the Orbicularis; but, as there is but a small Number of Fibres in this Portion, these Fibres are but very inconsiderable in this Eye-lid.

These slight Motions, especially those of the upper Palpebra, are not very easy to be explained, according to the true Structure of the Part. The Motions which wrinkle the Palpebræ, and which are commonly performed to keep one Eye very close shut, while we look steadfastly with the other, are explicable by the simple Contraction of all the Portions of the Orbicularis. These Motions, likewise, depress the Supercilia, which consequently may be moved in three different manners, upward by the Musculi Frontales, downward by the Orbiculares, and forward by the Superciliares.

#### THE VESSELS OF THE EYE, AND OF ITS APPENDAGES.

The external Carotid Artery, by means of the Arteria Maxillaris externa, and the Temporal and Frontal Arteries, give several Ramifications to the Integuments, which surround the Eye, and to all the Portions of the Musculus Orbicularis; and these Ramifications communicate with those which are distributed to the Membrana Conjunctiva Palpebrarum, and to the Caruncula.

The same external Carotid, by means of the Arteria Maxillaris interna, sends a considerable Branch into the Orbit thro' the inferior Orbital or Spheno-maxillary Fissure; which is distributed to the Periosteum of the Orbit, to the Muscles of the Globe of the Eye, to the Levator Palpebræ superioris, to the Fat, Glandula Lachrymalis, Membrana Conjunctiva, both of the Eye and Palpebræ, the Caruncle, &c. It communicates with the internal Carotid, and sends a small Artery to the Ethmoidal Cells of the Nose, through the small internal posterior orbital Hole.

The internal Carotid Artery, having entered the Cranium, sends off small Branches which accompany the Optic Nerve, and those which pass thro' the Fissura Spheno-maxillaris. One of these small arterial Branches runs into the Substance of the Optic Nerve, and produces, on the *Retina*, the small Arteries which appear very plainly on the inner Sides of that Membrane. The rest join the Ramifications of the external Carotid already mention'd, and, having penetrated into the Substance of the Tunica Sclerotica on the back Side, and run for a little Way through that Substance, they perforate this Coat inwardly in five or six Places at an equal Distance from the Optic Nerve, and the Pupilla.

Afterwards they perforate the external Lamina of the Choroides in the same Number of Places, and form between that, and the internal Lamina, the Vasa Vorticosa of Steno, and the Vascula Stellæ, mentioned in the Description of this internal Lamina. Some small vascular Filaments from these Ramifications are, also, observed to adhere very closely to the Tunica Vitrea; and, before they form the Vasa Vorticosa, they send small Arteries in a direct Course to the Circumference of the Uvea, where they form a vascular Circle, which sends out Capillaries as far as the Membrana Crystallina, which are very easily injected in new-born Children.

The Veins of all these Parts answer nearly to the Arteries. The internal Veins unload themselves, partly into the internal Jugular Vein by the Sinus Orbitarii, Cavernosi, and Petrosi, and partly into the external Jugular Vein by the Vena Angularis, or Maxillaris Externa, the Maxillaris Interna, Temporalis, &c.

Besides the Capillary Vessels, easily distinguishable by the red Colour of the Blood, there are great Numbers of those which admit nothing but the serous and lymphatic Parts of the Blood, and consequently do not appear in the natural State. They become visible in some Places by Inflammations and Injections, as on the Membrana Conjunctiva of the Eye; but these Contrivances do not discover them every-where in aged Persons. In a Fœtus, and in new-born Children, a fine Injection has succeeded so well, as to discover the Vessels of the Membrana Crystallina and Vitrea; and, in a Fœtus of about six Months, the injected Liquor seemed to me to have penetrated a Part of the Crystalline and Vitreous Humour.

#### THE NERVES OF THE EYE, AND OF ITS APPENDAGES.

Besides the Optic Nerve, described under the Article NERVUS, the Globe of the Eye receives several small ones, which run on each Side, along and about the Optic Nerve, from its Entry into the Orbit to its Insertion in the Globe. These Filaments come chiefly from a small lenticular Ganglion, formed by very short Branches of the Orbital or Ophthalmic Branch of the fifth Pair, and a Branch of the third Pair, or Motores Oculi.

These nervous Filaments of the Lenticular Ganglion, having reached the Globe of the Eye, are divided into five or six Fasciculi, which, having surrounded the Optic Nerve, and pene-

trated and perforated the Cornea Opaca or Sclerotica, run at Distances more or less equal between the Sclerotica and Choroides, towards the Uvea. There each of them is divided into several short Filaments, which terminate in the Substance of the Uvea. These small Nerves, which run from behind forward, between the Sclerotica and the Choroides, have formerly been taken for particular Ligaments, by very great Anatomists.

The Nerves which go to the other Parts belonging to the Eye, come from the third, fourth, sixth, and first two Branches of the fifth Pair of Nerves of the Medulla oblongata, and, likewise, from the Portio Dura of the seventh Pair. The third, fourth, and sixth Pairs give Nerves to the Muscles of the Globe of the Eye. The two Branches of the fifth Pair, and the Portio Dura of the seventh, give Nerves, not only to the other Parts, which surround the Globe, but, also, to the Musculi Frontales, and internal Parts of the Nose.

The Trunk of the third Pair, or Motores Oculi, having entered the Orbit through the superior Orbital, or Sphenoidal Fissure, produces four Branches. The first runs upward, and divides into two, one for the Musculus Rectus superior, and the other for the Levator Palpebræ superioris. The Trunk, continuing its Course, gives off the second short Branch to the Rectus inferior. The third Branch is long, and goes to the Obliquus inferior, contributing likewise to the Formation of the lenticular Ganglion already mentioned. The fourth Branch is large, and supplies the Rectus internus.

The first Branch of the fifth Pair, commonly termed Nervus Ophthalmicus, divides into three Branches as it enters the Orbit; and, sometimes, only in two, one of which is afterwards subdivided. Of these three Branches, one is superior, which I term Nervus Superciliaris; one internal, named Nasalis; and one external, to which the Name of Temporalis agrees better than that of Lachrymalis, which may occasion a Mistake.

The superior or Superciliary Branch runs along the whole Periosteum of the Orbit, and, having passed through the superciliary Notch or Foramen of the Os Frontis, is distributed to the Musculus Frontalis, Superciliaris, and superior Portion of the Orbicularis Palpebrarum; and it communicates with a small Branch of the Portio Dura of the seventh Pair.

The internal or Nasal Branch passes under the Ramification of the Nerve of the third Pair, and, running toward the Nose, is distributed thereto, and to the neighbouring Parts of the Orbicularis and Caruncula. This Branch sends off a Filament, which, passing through the internal, anterior, orbital Hole, enters the Cranium, and presently returns again through one of the Ethmoidal Holes to the internal Parts of the Nose. I have sometimes observed this Nasal Branch to communicate with the superciliary Branch, by a particular Arch, before it enters the Orbital Hole.

The external or Temporal Branch, which is, sometimes, a Subdivision of the Superciliaris, is distributed to the Glandula Lachrymalis, and sends off a Filament, which pierces the Orbital Apophysis of the Os Mala.

The second Branch of the fifth Pair, called Nervus Maxillaris superior, sends off a Branch through the bony Canal of the lower Part of the Orbit, which, going out at the anterior inferior orbital Hole, is distributed to the neighbouring Portion of the Musculus Orbicularis, and communicates with a Branch of the Portio Dura.

The Portio Dura of the seventh Pair, or auditory Nerve, which I call Nervus Sympatheticus minor, gives Branches to the superior, inferior, and external lateral Parts of the Orbicularis Palpebrarum, one of which communicates with the Nervus Superciliaris, and another with the Suborbitarius.

#### THE USES OF THE EYE, AND ITS APPENDAGES.

Every body knows, that the Eye is the Organ of Vision. The transparent Parts of the Globe modify the Rays of Light, by different Refractions; the Retina and Choroides receive the different Impressions of these Rays, and the Optic Nerve carries these Impressions to the Brain. When Objects are at a greater Distance, or obscure, the Pupilla is dilated; and it is contracted, when Objects are near, or placed in a great Light. The Muscles of the Globe of the Eye, and of the Palpebræ, perform the Motions already described.

The Glandula Lachrymalis continually moistens the fore Part of the Globe of the Eye; and the lachrymal Serum is equally spread over that Globe by the Motions of the superior Palpebra, the inner Surface of which is in a small measure villous. The Union of the two Palpebræ directs this Serum towards the Puncta Lachrymalia; and the unctuous Matter discharged through the Foramina Ciliaria, hinders it from running out between the Palpebræ. The large Size and viscid Surface of the Caruncula prevents it from running beyond the Puncta, and thus forces it into them. The Supercilia may hinder Sweat from falling on the Eyes. The superior Cilia, which are longer than the inferior, may have the same Use, and they both serve to prevent Dust, In-

sects,



and the like, from entering the Eyes, when they are only a little open. *Winflow.*

#### THE METHOD OF EXTRACTING BODIES FALLEN INTO THE EYES.

It is no uncommon Accident for the Eyes to be tormented by the Admission of a small Particle of Wood, Stone, Sand, of a Quill, of the Nails of the Hands or Feet, of Quick-lime, acrid Salts, and the like: which, if they are not quickly extracted, frequently occasion Inflammations, and other dangerous Consequences.

The easiest Remedy, in such a Case, is, to stroke the Eye-lid gently with the Finger, holding the Head down; by which means the increased Flux of Tears, excited by the adhering Particle, will often wash it out, without much Difficulty. If this Method fails, convey under the Eye-lid a little levigated Pearl, or Crabs-claw, that, when these are washed out by the Tears, the extraneous Substance may be brought with them. If this Remedy proves effectual, take the small round Head of a slender Probe, or a little Pair of Pliers, or the End of a Tooth-pick, and, gently elevating the Eye-lids from the Eye, carefully search for, and tenderly extract, the foreign Particle; or dip a Pencil-brush of soft Feathers, or a Bit of Sponge fastened to a Quill, in warm Water, which, being introduced under the Eye-lid, may brush it out. Lime, or any acrid Substance, may be washed out with Water, or Milk warmed, either by Injection, with a Feather, or Sponge. To remove the Redness and Inflammation, which may continue after the Substance is extracted, let the Patient frequently wash his Eye with a cooling and lenient Collyrium made of Rose-water, thoroughly mixed with the White of an Egg, a little Alum, and Sugar of Lead, or Tutty. If the Inflammation be violent, Bleeding must not be neglected.

#### OF TUBERCLES AND EXCRESCENCES ON THE EYE-LIDS.

These Tubercles are of different Sorts and Sizes. If the Excrescence be small, red, hard, immoveable, and seated above the Eye-lashes, it is denominated *Crithe*, or *Hordeolum*, from its Resemblance of a Barley-corn. This is an encysted Tumor, which, by Inflammation, generates a thick Matter, whence proceed intense Pain, and various Disorders of the Sight: Sometimes it is seated outwardly next the Skin, and sometimes on the Inside of the Eye lid. If the Tubercle be moveable, it is named *Chalazionum*. Some, being like Hail, assume the Appellation of *Grandines*; others, being Vesicles filled with an aqueous Humour, are termed *Hydatides*. Some are of the Nature of Atheroma, Steatoma, and Meliceris, which are described under the Article TUMOR. But almost all these Tubercles are of the encysted Kind, some hanging from a slender Root, and others seated on a broad Basis, as they are represented in *Tab. XXXVI. Fig. 16, 17, 18.*

Though such Tubercles, in other Parts of the Body, might be safely disregarded, yet, when they affect this Part, the Delicacy of the Organ requires particular Caution. If they are not very troublesome, they produce little or no Danger, though they somewhat disfigure the Part. These Tubercles seldom yield to Medicine, and by emollient Cataplasms, which are recommended by some, the Eye itself may be injured; therefore they require a surgical Operation.

All these Tubercles, those which hang from a small Root excepted, are removed by making an Incision in the Integuments, carefully avoiding wounding the *Cystis*, so that the *Cystis*, with the Tubercle, may, if possible, be extracted entire; as is directed under the Article TUMOR. But if the Coat of the Tubercle be wounded, or if it firmly adheres to the Flesh, so that it cannot be wholly separated from it by the Knife, cut out as much as you safely can, with a small Pair of Scissars, and immediately apply a digestive Ointment mixed with red Precipitate, or Unguentum *Aegyptiacum*, or with Lapis Infernalis, for eroding the Remains, and the Cure may be completed by a vulnerary Balsam. Sometimes, when I judge, that the Tumor cannot be entirely extracted, I make the Incision directly through the *Cystis*, and after having expressed the contained Matter, I apply Caustics for destroying the Remainder, as is directed for encysted Tumors. But here particular Care is required to prevent any of the Caustic from falling into the Eye, which might greatly injure the Sight. Pendent Tubercles may be easily removed either by cutting them off gradually with a Ligature of Silk-thread, or instantly with the Scissars. But the *Hordeola* require a different Method; for they, unlike other encysted Tumors, are attended with Pain and Inflammations; and, therefore, as in Inflammations, we must first endeavour to disperse them; but, if that Attempt fails, we must bring them to Suppuration, before we proceed to Incision. To promote the Discussion, and alleviate the Pain of a recent *Hordeolum*, frequently foment the Part with falling Spittle, or apply Mucilage of Quince-seeds, or the warm Pulp of a roasted Apple, mixed with a little Saffron and Camphire. If all these prove ineffectual, and the Tumor, beginning to turn yellow, tends to Suppuration, it may be promoted by a Plaster of Honey and Meal, or of Diachylum with the Gums. But if we would sooner complete the Cure, we must have recourse to the Knife; for which Purpose, after drawing back

and inverting the Eye-lids, we must, with a slender Knife, make a rectilineal Incision, in such a manner, that, if the Tubercle is as yet hard, the Bag or Vesicle, in which it is contained, may be commodiously separated and extracted. But, if the Tubercle is already ripe, it is to be laid open, the Pus to be ejected; and the Vesicle consumed by corrosive Medicines; by which means an unseemly Scar will be prevented, and the Wound conglutinated without the Assistance of other Medicines.

#### OF WARTS ON THE EYE-LIDS.

The Eye-lids are often affected with Warts, not unlike the above-mentioned Tumors, which not only disfigure the Part, but often injure the Sight. These Warts have either a large or small Root, and may be extirpated either by the Ligature, the Knife, or corroding Medicines, like other Warts. The actual Caustery, which may be used in other Parts, must never be applied in this Case; and even Corrosives must be used with extreme Caution, lest, by slipping into the Eye, they might destroy, or at least greatly injure, the Sight. If these Warts appear blackish or livid, a Gangrene is to be apprehended, which will ensue, if they are irritated by the Application of Instruments or Medicines; and for this Reason they have been named *Noli me tangere*; and should, therefore, be let alone. I happily removed, by Ligature, a large Wart on the upper Eye-lid, (*see Tab. XXXVI. Fig. 17.*) which impeded the Opening of the Eye; but had no very broad Root.

#### OF THE RELAXATIONS AND TUMORS OF THE EYE-LIDS, CALLED PHALANGOSIS AND PTOSIS.

We often find the Eye-lids so much tumefied or relaxed, as greatly to deform the Part, and impede the Sight. (*See Tab. XXXVI. Fig. 19.*) This Disorder always proceeds either from a paralytic Distemper of the *Musculus Elevator Palpebrae*, or from a Relaxation of the Skin above. Sometimes an cedematous, or watery Tumor is formed in the Eye-lids, so as to keep the Eye almost entirely closed; this Case should be accurately distinguished from the other, and easily yields to Medicine, by administering Cathartics, Diuretics, and Sudorifics, and by fomenting the Part with a Compress dipt in warm camphorated Spirit of Wine, or in Lime-water. But, when it proceeds from a Relaxation of the Skin, strengthening Medicines are proper, as a Plaster of the black Oil of Tartar, mixed with Wax, or *Peruvian Balsam*, *Hungary Water*, Spirit of Worms, and the like. If these Medicines fail, the best Method is, carefully, to cut off a sufficient Quantity of the relaxed Skin; which renders it shorter, and reduces it to its natural State.

The Antients used the following Method of curing this Disorder. The relaxed Skin being raised, they passed a Needle, with a Thread, through it; then, artfully twisting the Thread about the raised Skin, they separated it, by making a tight Ligature; and this Operation frequently succeeds. Or with the Scissars or Knife, they amputated the superfluous Part of the Skin, and, bringing the Lips of the Wound into Contact, they secured them by a few simple Stitches; as we read in *Hippocrates*, (*Lib. de Vict. Ratione in Acutis*) *Celsus*, (*Lib. 7. Cap. 7.*) and *Paulus Aegineta* (*Lib. 6. Cap. 8.*). But, in the last Method, the Hemorrhage frequently proves so large, as to obscure the Wound, so that a neat Suture cannot be made, which is consequently followed by an unseemly Cicatrix. To prevent these Inconveniences, *Bartsius*, a celebrated *German Oculist*, contrived a wooden Instrument, represented in *Tab. XXXVI. Fig. 19. BB*, to intercept the redundant Skin, *Fig. 19. C.* and, compressing it by turning the Screw *DD*, so as to obstruct the Circulation, the intercepted Part mortified in a few Days, and cast itself off.

But as this Method of *Bartsius* was attended with great Pain, Inflammation, and other Inconveniences, *Verduin*, of *Amsterdam*, made a Brass Instrument almost similar, but perforated in its upper and lower Parts (as in *Tab. XXXVI. Fig. 21.*): By this Instrument, he compressed the superfluous Skin, and pass'd a Needle with a Thread through the Perforations, as often as might be necessary, leaving four or five Inches of the Thread hanging down on each Side; then with the Knife, or Scissars, he cut off the prominent Skin, close to the Edge of the Instrument; after which he removed the Instrument, taking care not to draw out the Threads, which he immediately ty'd as in a common Suture. The Wound must be dress'd, the first time, with some vulnerary Balsam, and scrap'd Lint; and, in the subsequent Dressings, you spread your Lint either with a vulnerary Balsam, or some digestive Ointment, to be secured with Compress and Bandage. After three or four Days, the Bandage being always removed with the greatest Caution, and the Lips of the Wound being closed, cut the middle Knot, and gently extract the Thread. The rest of the Threads may be treated by one at a time, in the same manner, completing the Cure with some vulnerary Balsam and Plaster. The Wound may be cauterized before the Removal of the Instrument, which will not only suppress the Hemorrhage, and render the Disorder less subject to return, but may perhaps make a Suture unnecessary. Sometimes this Disorder is of so long Continuance, and the Tumor so large, that the Eye loses its natural Figure; and sometimes Relapses happen after repeated Operations, which render



ders the Case incurable. Lastly, we may observe, that *Rau* invented an Instrument for this Purpose, little differing from the former in its Shape and Uses, *Fig. 22*. But the Invention of this Instrument was highly controverted between him and *Ruyfch*, who attributed it to *Adrianfonius*.

#### OF THE EYES IRRITATED BY THE EYE-LASHES.

The Eye-lids are sometimes turn'd inwards, so that the Eye becomes extremely irritated by the Hairs or Eye-lashes: Hence proceed intense Pains and Inflammation, which, without timely Assistance, may greatly injure, if not totally destroy, the Sight. This Disorder was, by the *Greeks*, named *Trichiasis*, *Distichiasis*, or *Districhiasis*, hairy, and sometimes *Entropium*. It generally arises from an irregular Cicatrix formed after a Wound, the Small-pox, or a Burn; and sometimes it is occasioned by a Relaxation of the Eye-lids, and then it is attended with the other Mischiefs above-mentioned.

To remedy this Disorder, and prevent a Relapse, the Hairs must be entirely extirpated, an Operation very difficult to be performed. If the Hairs are cut close, it will be to no Purpose; for the rigid, sharp-pointed Stumps will again shoot up, and irritate the Eye worse than the Hairs did before. Some endeavour to bend the Hairs outwards, by keeping them agglutinated on the Outside of the upper and lower Eye-lids by some sticking Plaister; but the continual Motion of the Eye-lids soon loosens the Hair, and they become again inverted. *Celsus*, therefore, directs to burn the Roots of the Hair, one by one, with a slender, but broad-pointed Needle, shaped like a Spatula, heated red-hot. But *Aegineta* advises to pull out the Hairs, one by one, before the Cauterization of their Roots, an Operation which cannot be performed without exquisite Pain; and, therefore, some chuse to fill up the Cavities at the Roots of the Hairs, after their Extraction, with some corrosive Medicine, such as Lapis infernalis, taking care, that no Part of it gets into the Eye; or it will be better to touch the Cavities with a small Pledget dipt in the Spirit of Sal Ammoniac, or the highly-rectified Spirit of Wine; by which means they will close up, without producing any more Hairs. When there are many inverted Hairs to be thus extracted, let them be pulled out at different times, and not all at once, which would induce violent Pain and Inflammation. The Cornea should, also, be defended from the Caustic, or the actual Caustery, by scraped Lint, or a smooth hollow Plate of Lead, Wax, or Horn, adapted as in artificial Eyes. If the Disorder should arise from a Relaxation of the Eye-lids, it will be necessary to treat it, like the Relaxation only, as was before directed.

But if all the Hairs of the Eye-lids are thus inverted, and the Patient will not permit them to be extracted by the Roots, and treated with Caustics, there is but one cruel Remedy left, by amputating the Cilia, or cartilaginous Margins of the Eye-lids themselves; a Remedy, which, tho' it deforms the Eye, had better be suffered, than an entire Privation of Sight. After the Operation, a Collyrium should be made and apply'd, of the White of Eggs, Rose-water, and Sugar of Lead, or with Water, and Spirit of Wine, mixed in equal Quantities; and the Wound must be treated, in the subsequent Dressings, with some Oil, or vulnerary Balsam, till it be healed. But *Cortunius*, in a Dissertation de *Trichiasis*, has proposed to remove the Cilia, rather with Lapis Infernalis, than by Amputation, in the following Manner: When the Patient is laid on his Back, defend the Eye with Lint or Leather, and rub the Edges of the Eye-lids with strong Lapis Infernalis, till they and their Hairs are quite consumed. The Operation being completed, dress first with dry Lint; and, about an Hour after, apply upon the Lint the White of an Egg, soak'd in Rose-water, which must be often renewed. Next Day, Part of the Lint should be removed, to prevent an Inflammation from it. If any small Eschar is formed, it may be removed by some digestive Ointment, after all the Lint is taken away; and thus he asserts, that the Wound will generally be conglutinated in six or eight Days time.

For ANCYCLOBLEPHARON, or Concretions of the Eye-lids, see ANCYCLOBLEPHARON.

For ECTROPIUM, and LAGOPHTHALMIA, or Eversion and Retraction of the Eye-lids, see ECTROPIUM.

For the ENCANTHIS, or Tubercle in the Corner of the Eye, see ENCANTHIS.

#### OF THE SARCOMA AND HYPERSARCOSIS, OR EXCRESCENCES BETWEEN THE EYE AND ITS LIDS.

Those Tubercles, which grow between the Eye and its Lids, as represented in *Tab. XXXVI. Fig. 28. 29.* called by the *Greeks*, *Hyperſarcoſis*, and *Sarcomata*, are nearly of the same Nature with those Disorders already mentioned. In the Beginning they are very small, but increase by degrees, and sometimes to a considerable Magnitude. Some of them are smooth, and even-surfaced; and some are rough and unequal like the Raspberry, or Mulberry; several of which Excrecences I have cured, in the following Manner.

I carefully pulled them out with a small Hook, and then cut down to the Root, with a small Pair of Scissars. After suffering

it to bleed, I ordered the Patient to wash his Eye frequently with a Solution of Tutty, Aloes, and Sugar of Lead, till the Wound conglutinated. Instead of an Hook, the Tubercle may be drawn out by passing a Needle and Thread through it. Some use the Lapis Infernalis, in extirpating these fleshy Excrecences; but I think Incision much safer.

#### OF BLEEDING IN THE EYES.

Blood-letting in the Eyes was, a few Years ago, claimed, by *Woolhouse*, an *Engliſh* Oculist, as an Invention of his own. But it evidently appears, that the Operation was known, described, and practised, in *Germany* above an hundred Years before. This Operation is, however, extolled by *Woolhouse*, as preferable to all other Discoveries in Physic, and even to the celebrated Philosophers Stone.

Blood-letting may be successfully used in the Eyes, 1. When they are violently inflamed; that is, when the Blood-vessels of the White of the Eye appear larger and redder than usual. This Operation, in this Case, has often had excellent Effects, when other Remedies, and even Phlebotomy, in other Parts of the Body, have failed, and when the Inflammation increases so as to endanger the Sight. 2. It may be serviceable, when the Cornea is affected with Specks, or Abscesses; for, after dividing the Vessels, which nourish the Disorder, it may be much more easily removed. 3. When a red Coat, or Film, grows upon the Eye; for the oftener the Vessels are cut, which nourish the Film, the sooner will it decrease and disappear. 4. When, after the Extirpation of such Films, a Relapse is threatened, by the Intumescence of the Veins in the White of the Eye, or those of the Cornea, the turgid Veins ought to be opened, and fomented with drying Medicines.

As the Methods of Operation are numerous, we shall only give the principal: 1. The Patient must be conveniently placed on the Bed-side, or on a Chair, and his Head must be steadily held by an Assistant; then make a transverse Incision with a Lancet upon the turgid small Veins in the Corners of the Eye, so as to open them, or cut them through. 2. Sometimes a small Pair of Scissars, instead of a Lancet, may be conveniently used to divide the Vessels. In both these Methods, the Operator must retract the Eye-lids with the Fingers of one Hand, and make the Incision with the other. 3. Some elevate the small turgid Veins with a crooked Needle before they divide them, the Eye-lids being distended by an Assistant. 4. But it would not be improper to have these Needles made thin and double-edged, so that they may divide the Vessels of themselves in the Elevation, without the Use of Lancet, or Scissars. 5. This Operation may be almost as advantageously performed by the scarifying Instrument, which shall be presently described.

The Veins being thus opened or divided, the Discharge of Blood should be promoted by Fomentations of warm Water, or the Decoctions of Eyebright, Hyssop, Male Speedwell, and the like digestive Herbs, frequently applied with a Sponge, or a soft Piece of Linen; for the more copious the Discharge is, the better will be the Effects. But, if one Operation is not sufficient to lessen the Disorder, it may be safely repeated two or three times, assisting it with proper Medicines both externally and internally. I must, indeed, confess, that after having tried this Operation on several Patients, first at *Altorf*, and afterwards at *Helmstadt*, I could hardly persuade them to suffer it at all, much less to submit to a Repetition of it; some being deterred from it through Fear of losing their Sight, and others on account of the great Pain which must attend it, especially as the Tenderness of the Eye must be increased by the Disorder. This Operation is seldom performed upon Infants, because of the Difficulty of persuading them to keep their Head and Eyes steady; and the Danger of applying a Lancet, or other sharp Instrument, when those Parts are in Agitation, is evident.

That Incision proposed in a Dissertation under *Camerarius* at *Tubingen*, in 1734. for a Venereal Ophthalmia, is nearly allied to this Operation; in the most violent Symptoms of which Disorder, it is advised to make a circular Incision in the White of the Eye round the Cornea, to discharge the stagnating Blood, or other Matter distending that Membrane. But whether this be a safe or efficacious Practice, or whether it may not be successfully used in other violent Ophthalmias, as well as the Venereal, can be only ascertained by the best of Teachers, Time, and Experience.

#### OF THE SCARIFICATION OF THE EYES.

Scarification and Bleeding of the Eyes agree in many respects; so that it is no great wonder, that *Woolhouse*, though a famous Oculist, should confound them. But, I think, there is a manifest Difference; because, 1. Bleeding is confined to the White of the Eye: But Scarification is likewise extended to the Interior Surface of the Eye-lids, where it is principally performed. 2. Each Operation requires different Instruments, as will presently appear.

That



That Scarification of the Eye is no modern Invention, is apparent from its having been described by *Hippocrates*, *Celsus*, *Ægineta*, and other eminent Physicians. But it was neglected by the Physicians in the succeeding Ages, partly, because it was difficult to perform, and attended with intense Pain; partly, as it was extremely dangerous; and partly, as they judged it to be of little or no Efficacy. *Woolhouse* was the first who revived the Practice among the Moderns.

The Operation is thus performed: Let the Patient be seated on a Bed or Chair, opposite to the Light, and his Head be held steady by an Assistant. Let the Operator, with his fore Finger and Thumb, gently press back the Lids of the closed Eye, so as to bring the interior red Surface into View, which may be done with most Ease in the lower Eye-lid. With his scarifying Instrument in the other Hand, let him diligently and swiftly rub backwards and forwards, upon the internal Surface of the Lid, or the White of the Eye, if necessary, and sometimes even the Cornea, and Caruncle of the greater *Canthus*, so as to lacerate the small turgid Veins, and make them bleed plentifully. But this Operation cannot easily be explained by Words, and none should attempt it before they have seen it performed.

The Scarification being completed, the Discharge of Blood must be promoted, as directed in the preceding Operation. The oftener the affected Eye is for the first Day moisten'd with Fomentations, or digerent Injections, it will be the better cleansed, and the Inflammation will the sooner abate. But, in order to prevent the scarified Parts from coalescing, they should not be bound up, at least in the Day-time; and the Lids should be frequently moved by the Patient. If they are bound up at Night, *Woolhouse* recommends the Interposition of three or four Seeds of Clary, or rather a Bit of Gold-beaters Skin, anointed with some Eye-salve, between the Eye and Lids, to prevent the Adhesion of the Parts. How often the Scarification should be repeated, and what Intervals allowed, must be left to the Judgment of the Physician. Meantime it will be absolutely necessary to prescribe a proper Diet, and to exhibit both external and internal Medicines. See *Platneri Diff. de Scarificat. Oculor.*

Different Authors have used different Instruments for this Operation. *Hippocrates* seems to have used a sort of prickly Thistle, like the *Atractylis*. Some ancient Physicians used a small Steel Rasp, in the Shape of a Spoon; see *Tab. XXXVII. Fig. 5.* with which they rub'd the internal Surface of the Eye-lid, till it bled, as we see in *Celsus, Lib. 6. Cap. 6. Num. 26.* who called this Instrument *Specillum Alperatum*; and in *Ægineta, Lib. 3. Cap. 22.* who named it *Blepharoxylon*. Others use the rough Herb, termed *Equisetum majus nudum*, (a Species of Horse-tail) which seems well adapted to the Intention; others, and among them *Celsus*, used the Fig-leaf; others recommend the Pumice-stone or Cuttle-bone.

But the latest and best Instrument for this Operation, is found to be Beards of Barley or Rye, which are furnished with Rows of small Teeth, or Hooks, represented in *Tab. XXXVII. Fig. 3.* A. Ten, twelve, or fifteen of these Beards are to be cut, and tied together with a String, so as to resemble a sort of Brush for Cloths, as in *Tab. XXXVII. Fig. 4.* The Teeth of each Beard, or Spike, being turned outward all round, their slender Ends form a sort of Handle A; and the brushy Part B, being quickly drawn over the Eye or Eye-lids, draws the Blood. This Scarification has been, by the Moderns, named *Ophthalmoxylis* or *Blepharoxylis*.

The first Contriver of this Eye-brush appears to be Mr. *Woolhouse*, who, though he highly extol'd the Usefulness of his Instrument to his Students, yet he studiously endeavoured to conceal it, till in 1726. *Mauchart*, present Professor at *Tubingen*, who had studied under *Woolhouse*, not only published the Instrument, but its Uses, and Method of Application, in his *Treatise de Ophthalmoxylis*. About two Years after *Platnerus* of *Leipsic* explained the Subject at large in his *Treatise de Scarificatione Oculorum*.

This *Ophthalmoxylstrum* or Eye-brush, is said by Mr. *Woolhouse* to be very serviceable in all Disorders of the Eyes, which require Bleeding: As, 1. In a Stagnation of the Blood, or violent Inflammation in the Eyes, whether it proceeds from external or internal Causes, as a Blow, Wound, Cataract, Pterygium, Hypopion, Staphyloma, and the like; in which Cases the internal Surface of the Eye-lid should be first scarified, in order to discharge the stagnating Blood. And if we may believe *Woolhouse*, and his Followers, this Practice is more effectual in removing Inflammations induced by external Causes, or a Chirurgical Operation, than in spontaneous Ophthalmias. But in the *Chemosis*, or most violent Inflammation of the Eye, it will be necessary, besides the Eye-lids, to scarify the Eye itself with this Brush. 2. He likewise recommends this Method of Scarification, when the Eye is affected with a Pterygium, or with Abscesses, and whitish Specks; for by scarifying the Albuginea, or, if necessary, the Cornea itself, or rather the Pterygium upon the Cornea, the Vessels which nourish these Maladies are lacerated; so that, by the Applica-

tion of proper Medicines, the Disorder may be removed with greater Ease and Expedition. 3. This Operation, he says, is of great Efficacy in strengthening a decay'd Sight; or even to remove an Amaurosis and Cataract, which have not reached to a Degree of Inveteracy; for, by the strong Stimulus of the Scarification, the stagnating Humours are put in Motion, the obstructed Nerves, and straitened Blood-vessels, are again opened, and the Eye is by degrees restored to its former Vigour. 4. He us'd the *Ophthalmoxylis*, when the Eye was attacked with an Atrophy or Tabes. For the Extraction of the Blood occasions a larger Influx of the nutritious Juices into the rabid Part, by which means its due Nourishment is restored. 5. This Method he used in an *Hypohæma*, or Hypopion, that is, a Collection of Blood, or Matter under the Cornea, proceeding from a Blow, or other external Violence, which must be dispersed, in order to clear the Sight. 6. This, he says, is no despicable Remedy in relieving intense Pains of the Eyes, (called by the Antients *Ophthalmoponia*) when the Light itself is become intolerable. For, as these Pains proceed from an extraordinary Distention of the Blood-vessels, or from a Stagnation and Inspissation of acrid Humours, or from an internal Inflammation of the Eye, upon the Discharge of the superfluous Blood, the Pains must remit. 7. Lastly, the *Ophthalmoxylis* will likewise have excellent Effects in Palsies, Mortifications, and many other like Diseases, both of the Eye, and its Lids. See *Mauchart* and *Platnerus*, already quoted.

But *Platnerus* observes, that this Operation is not serviceable in every Disorder of the Eyes, for it will be improper, 1. In a Xerophthalmia, or dry Lippitude; that is, where the Eye is dry, itchy, hot, rough, the Eye-lids covered with dry Scales, and the Patient cannot behold the Light without Pain and Trouble. 2. When the Disorder proceeds from a venereal or scorbutic Cause. For unless the vitiated Juices be first corrected, as this Operation augments their Influx upon the Parts, it may increase, rather than relieve, the Disorder. 3. In a Cataract, Gutta Serena, or Hypopion, of an inveterate Nature. 4. Lastly, in an Ectropium, Trichiasis, Anchylosis, and other Diseases of that kind.

With regard to the Eye-brush, it is to be observed, that a small Force will blunt it, and therefore it cannot be used more than once; so that every Operation requires a new Brush. The Beards of old Barley are not so proper as those of what is new, or, at least, not above a Year old; because the first, being very brittle, will be subject to break, and leave some of its Teeth behind in the Eye and Lids, which might produce very dismal Consequences. For the same Reasons, it should not be the Product of a Soil too rich; nor should it be kept in a Place too dry, or too moist; nor have undergone Threshing.

After all, I must confess, that though I have performed this Operation in various Diseases of the Eyes, I never could perceive any remarkable Advantages in consequence of it. What is more, I have known many afflicted with various Disorders of the Eyes, who have been reported by *Woolhouse*, and his Followers, to be cured by this Practice, when the only real Benefit they have received by it, was an Abatement of their Pain; which I mention, lest it should be imagined I did not succeed, by not rightly performing the Operation. I must however own, that I have sometimes known it serviceable, especially in Inflammations of the Eyes: And I am persuaded, that it was in such Cases that *Woolhouse*, and his Followers, observed its good Effects, especially when it was assisted with proper Remedies, particularly Phlebotomy and Vesicatories. But, as the like Disorders of the Eyes have been frequently cured by the Use of proper Medicines only, without any Scarification of the Part affected, it may in general be questioned, whether those Disorders would not have been as easily removed by Bleeding, Purging, Blisters, and Scarification in other Parts, as by this Practice. We know that Diseases of the Eyes have been effectually cured, before *Woolhouse* introduced the *Ophthalmoxylis*; and perhaps are better removed at this Day, by some who have never known nor practised his Method. Besides, if the Pains produced by such rigid Treatment and Laceration of so tender an Organ, are so intolerable, that few would even once undergo the Operation, much smaller is the Number that would ever submit to it a second time. Besides, though the greatest Caution is required in the Operator, yet, as the excruciating Torment will hardly permit the Patient to keep his Eye fixed, great must be the Danger, either of touching and even severely wounding the Cornea, or of breaking the Teeth of the Instrument, and leaving them in the Eye; whence would arise a more violent Inflammation than that intended to be cured, and many like dreadful Consequences. Hence then, in my Opinion, every prudent Physician will acknowledge, that this Scarification of the Eyes is surrounded with Difficulties, even in those Disorders, for the Remedy of which it is most peculiarly calculated. Nor are the Advantages usually expected from it so remarkable, nor the Examples of its good Effects so evident, as to counterbalance the extreme Danger, and exquisite Torment, with which it is attended. I would, therefore, advise this Method never to be used, but in Cases of the last Necessity, and when all other Means have failed. It is, also, remarkable, that, among the modern



dern French Surgeons, *St. Yves* excepted, as they say little or nothing of most other Methods of removing the Diseases of the Eyes, so they have taken no notice of this Operation, though it at first made so much Noise in the World.

For the EPIPHORA or watery Eye, see EPIPHORA.

For the FISTULA LACHRYMALIS, see FISTULA.

For Suffusions or CATARACTS, see CATARACTA.

For the Method of dilating the Contractions of the Pupil, see IRIS.

#### OF THE UNGULA, UNGUIS, PANNUS, OR PTERYGIUM OF THE EYES.

When a small Membrane is formed on the external Part of the Eye, extending itself over the Tunica Cornea and Pupil, and greatly obstructing the Sight, it is called Ungula or Unguis, from its Similitude to the Nails of the Fingers: For the same Reason the Greeks named it *Onyx*, and, also, *Pterygium*, a Wing, because it sometimes resembled the Wing of a Bat; sometimes it appear'd soft and red, when abounding with Blood-vessels, and then it usually assumes the Name of *Pannus*. It frequently arises from the Angle of the Eye next the Nose, and sometimes it comes from the upper or lower Side of the Eye, stretching itself gradually over the Cornea, as in *Tab. XXXIX. Fig. 1. and 2. a a*. Sometimes it is only slightly connected with the Cornea, by a few slender Fibres; at other times it overspreads the whole Eye, and firmly adheres to it; and difficult indeed is then the Cure.

Whilst the *Unguis*, or *Pannus*, is yet recent, small, and soft, it may be gently dissolved by Escharotics, such as a Dram of the Powder of double-refin'd Sugar, mixed with four or six Grains of white Vitriol, or burnt Alum, or a small Quantity of Verde-grise, carefully sprinkled at Intervals upon the Excrescence. To the same Purpose may a Powder be prepared of old *Stiffilis Lapis*, Cuttle-bone, and Sugar. As it will be difficult to apply such a Powder to Infants, they may be treated with *Quercetan's* Eye-water, or the Fat of Vipers, or the Fat of the Grayling, or the Gall of the Eel-pout, or liquid Sperma Ceti, or the Oil of burnt Linen, or, lastly, with fresh Butter mixt with a little white Vitriol, with which the Membrane should be carefully anointed: These Remedies may, also, be advantageously applied to Adults. If the *Unguis* is attended with an Inflammation, begin with bleeding, blistering, and cooling Medicines to remove the Inflammation. *St. Yves* highly recommends in this Disorder, the Lapis Divinus or Medicamentosus of *Crollius*, dissolved in Water, and frequently instilled into the Eye; and of equal Efficacy is half a Scruple of white Vitriol dissolved in two Ounces of the Water of the greater Celandine.

When these Remedies are not effectual for destroying the Pellicle, it must be removed by Incision. For this Purpose, the Patient must be placed with his Back towards the Surgeon, and his Head inclin'd upon the Surgeon's Lap. The Patient must rest upon the Operator's Left Knee, if the Disorder is in the Right Eye, and *vice versa*. Then, the Eye-lids being sufficiently drawn asunder by an Assistant, let the Operator take a small Hook, as in *Tab. XXXIX. Fig. 3. or Tab. XXXVI. Fig. 30.* and endeavour to introduce its Point under the loosest Part of the Pellicle, thus attempting to elevate it a little. Then, passing a threaded Needle under the Pellicle, *Tab. XXXIX. Fig. 1. b b*; he may tie it with a double Knot, *Fig. 11. a a*; and then, fastening the two Ends in a Loop *b c*, let him raise the *Unguis* by gently drawing the Thread to him; then let him separate the upper and lower Parts of the Membrane, that, with a small straight Pair of Scissars, he may expeditiously cut it near the Lachrymal Caruncle. He then draws back the Thread with the Membrane towards the Cornea; and, if it adheres any-where to the Eye, he gradually frees it, by degrees, with the Knife, or Scissars. Two Circumstances are here to be principally regarded by the Operator: 1. That he neither injures the Eye, nor its Cornea. 2. That he leaves none of the *Unguis* adhering to the Eye, which might occasion a Return of the Disorder. Yet it is better to leave some Part of the *Unguis* behind, when it obstinately adheres to the Cornea, than, by endeavouring to separate it, to wound the Cornea, and produce irremediable Scars; and this the rather, because any small Remains of the Membrane may be removed, by applying to the Eye the gentle Escharotics already named, two or three times a Day; though some prefer for this Purpose the following Collyrium.

Take of Rose-water, and Plantain-water, each an Ounce; prepared Mother of Pearl, a Scruple; Sugar of Lead, six Grains; white Vitriol, three Grains: Mix them for a Collyrium.

*St. Yves* advises the Patient's Eye to be washed, for four Days after the Operation, with Spirit of Wine diluted in Water; and then, to complete the Cure, a Solution of *Lapis Divinus* in common Water may be exhibited. But, in cutting the Pellicle near the Caruncle, particular Care must be observed, that no Part of the Caruncle, much less the Whole of it, be

amputated. For, if this Caruncle should be removed from the *Canthus*, a new Passage for the Tears would be made, and hence would arise the Disorder called *Oculus Lachrymans*; or the weeping Eye.

Some of those Pellicles, which assume a red Colour, because of the Blood-vessels communicated to them from the greater Angle of the Eye, may be removed by dividing these Blood-vessels near the Caruncle; for by this means the Pellicle, having its Nourishment withdrawn, will of itself gradually wither and decay; or will, at least, more easily yield to Medicine. Sometimes a glutinous Matter, resembling a thin Membrane, or Fat, overspreads the Cornea; which may be easily removed by applying the Bile of the Eel, Eel-pout, or the like, to the Eye; and it is not improbable, that this was the Case of *Tobias*, mentioned in the Apocryphal Writings. Sometimes these Membranes adhere so obstinately to the Eye, as to be absolutely inseparable from the Cornea; but, as we cannot be ascertained of this Obstinacy before Trial, it is better to attempt a Cure, though it should prove ineffectual, than to neglect it as irremediable. Some Pellicles on the Eye are extremely painful, inclining to a cancerous Disposition, which ought to be left as incurable.

If the *Unguis* be extended over the whole Eye, it will be proper to divide it into four Parts, as *St. Yves* directs, each of which may be removed, and the Dressings ordered in the manner already prescribed.

When the Operation is so performed on the Left Eye, after the Needle has been passed through the Membrane, the Patient should rise from the Ground, and place himself in a convenient Seat; by which the Operation may more speedily be completed, unless the Operator be as expert with his Left Hand as his Right.

#### OF THE ALBUGO, LEUCOMA, NEBULA, NUBECULA, AND SPOTS IN THE CORNEA.

As in several other Classes of Disorders belonging to the Eye, so in this, we meet with much Confusion, by a Misapplication and Multiplicity of Names. Hence proceed Difficulties, Mistakes, and Differences among Physicians in the Method of Cure; and much Trouble and Perplexity is created to the Student.

We find, however, that the most eminent Physicians have all agreed to ascribe the above-mentioned Names to whitish Spots on the Cornea; though they are not all of the same Nature: For they may be larger or smaller, thicker or thinner, and more pellucid; or they may be more or less prominent. Thus they may more or less impede the Sight, and sometimes entirely extinguish it, as these Spots sometimes over-run the whole Cornea. Hence this Disorder was named in Greek *Leucoma*, and in Latin *Albugo*, *Nebula*, and *Nubecula*, from its different Appearances.

These Blemishes may proceed, 1. From an Obstruction of the pellucid Vessels in the Tunica Cornea, and an Inspissation of their contained Juices, proceeding from a violent Inflammation of the Eye. 2. From an Abscess generated by a Stagnation of these Juices, after an Inflammation of the Cornea, while the peccant, opaque Matter, hardens by degrees, and stretches a whitish Cloud over the Cornea. This Disorder has been by some called the *Unguis*, or *Onyx*, and esteemed a peculiar Species of Disorder. 3. From an Erosion, or external Abscess, of the Tunica Cornea. 4. From inflammatory Pustules, which, from different Causes arise in the Cornea; especially, 5. From those which are occasion'd by the Small-pox. 6. From the Scar after a Wound with a Sword, Knife, Fork, Splinter, Glass, Thorn, or the like. 7. From a Burn. 8. From the accidental Slipping of acrid or corrosive Medicines into the Eye, or the injudicious Application of them. 9. Lastly, from the Agglutination of a peculiar Coat to the Eye.

Though these Spots are, for the most part, very obstinate, yet they are not always equally dangerous, nor equally difficult to disperse; as the Cure depends upon the Habit of Body, their particular Causes, their Duration, and the Age of the Patient. Children are more easily freed from them than Adults; but when it is produced by a Scar from Wounds, Burns, Punctures, or the like, hardly any Remedy can be expected.

The Method of Cure must be adapted to the Cause of the Disorder. Those Spots which proceed from inspissated Humours stagnating between the Laminae of the Cornea, and have been of no long Continuance, may be best cured by carefully observing a proper Regimen, by taking internal digestive Medicines, and the copious Use of sudorific Infusions and Decoctions: The necessary external Remedies are Bleeding, Scarifications, Vesicatories, and frequent washing of the Feet: To the Eye itself should be often applied discutient Bags made of Hyssop, Rosemary, Chamomile-flowers, Fennel-seed, and the like, boiled either in Wine or Water; or a Collyrium of the Water of Fennel, or Valerian, mixed with a small Quantity of camphorated Spirit of Wine. Lastly, it may not be improper for the Patient to fumigate his Eye, after the Dressings are taken off, with the warm Vapours of Coffee, or a Decoction of the Woods. Cold and astringent Collyriums, especially those of



of Vitriol, however they may have been extolled, are certainly very pernicious in this Case; whereas I have found warm Applications extremely serviceable. When the Inflammation is carried off, let the Patient every Day instil into his Eye a little of *Quercetan's* Eye-water, prepared with Tutty, or some other Digestive, and warmed, till he finds the Disorder almost removed. But if any of the Veins proceeding to the Spot appear turgid in the White of the Eye, recourse must be had to cutting them with the small double-edged, crooked Needle (*Tab. XXII. Fig. 5. or Tab. XXXVII. Fig. 2.*) or with a Lancet, or Scissars. If the Disorder has been of long Duration, no Remedy can be expected.

When Spots are produced by an Abscess between the Laminae of the Cornea, after an Inflammation, and the contain'd Matter makes the exterior Part of the Cornea project like a Lentil or Pearl, whence this Disorder is called a Pearl, the Matter should be immediately discharged by Incision, lest, by its long Continuance there, it should by degrees affect the whole Cornea, and induce incurable Blindness. This may be most conveniently effected by a Lancet, or Couching-needle, *Tab. XXXVIII.* and the Operation must be repeated till the whole Matter is evacuated, afterwards exhibiting the digestive Medicines already proposed. Nor is it improper to instil into the Eye Vipers Fat, for cleansing and conglutinating the Wound or Puncture. But when the Matter is lodged deep, and not near the Outside of the Cornea, the Sight is generally lost.

When an external Erosion of the Eye proceeds from an Abscess or Inflammation, *St. Yves* directs, first to remove the Inflammation, and then to drop frequently into the Eye *Hartmann's* green Eye-water, which may be made stronger or weaker, as the Patient can bear it. The Virtues of this Water in removing Spots of the Cornea are strongly recommended by that Author.

If those inflammatory Pustules, which are called Urtides, project upon the Cornea like a Pearl or Grain of Millet, the inclosed Matter should be immediately discharged by perforating them with a small Needle. When the Eye is affected with Pustules in the Small-pox, they ought to be opened immediately, and the remaining Pellicle being taken away, with a small Needle, Lancet, or other Instrument, a small Quantity, about the Size of a Lentil, of a Powder prepared with Alum, Sugar-candy and Egg-shells, must be every Day put into the Eye; or it must be daily anointed with the Oil of burnt Linen: By which means the Remains of the Spots will, according to *St. Yves*, gradually decay. This Method must be observed in Pustules generated upon the Cornea by a Burn. If, at last, after the Pellicle is removed, some Spots should still remain, they may be treated with the Medicines prescribed in the Case of an Onyx or Unguis.

Those Spots which arise from Wounds and Scars, or the Abuse of vitriolic Collyriums, those which, by their long Continuance, have rendered the Cornea entirely opaque, and those which have altered the natural Shape of the Eye, or of the Cornea, seldom admit of a Cure. In these Cases, therefore, it is better to attempt nothing, than to torment the Patient with a tedious, but inefficacious Course of Remedies and Operations.

#### OF THE STAPHYLOMA.

The Term *Staphyloma* comprehends two Disorders of the Eyes: One is when the Tunica Cornea is gradually rendered more protuberant than in its natural State, as in *Tab. XXXIX. Fig. 4. 5. 6. 7.* The other happens, when either from an internal Cause, or an external Wound, the Uvea or Pupilla breaks forth upon the Tunica Cornea, and deforms the Eye with a Tumor, by which the Sight is generally destroy'd. See *Fig. 8. a a.*

These Tumors from their different Forms and Sizes assume different Names. Thus they are called *Margarita*, *Myoccephalon*, *Clavus*, *Mylon*, or *Pomum*; and, lastly, *Staphyloma*, *Uva*, or *Acinus*, according to the Resemblance they bear to the Things, whence they are named. The largest is the Mylon. I have not only observed the Cornea, but sometimes the Scleroticæ, preternaturally swelled and distended; and even then the Disorder may be denominated *Staphyloma*; because these two Coats properly consist but of one. However, for Distinction, one of these Tumors may be called *Staphyloma Scleroticæ*, the other *Staphyloma Corneæ*.

These Staphylomas not only deform the Eye, and destroy the Sight, but occasion most violent Inflammations, Pains of the Head, Watchings, and Suppurations, and frequently induce a Cancer. Their Cure, therefore, is undertaken not so much with a Design to restore or preserve the Sight, which is by them almost always extinguish'd; but to remove the Deformity of the Eye, and those malignant Symptoms already enumerated.

In the Cure of this Disorder, apply to the Tumor a Compress dipt in Water, impregnated with Alum, together with a Plate of Lead and Bandage, or some proper compressing Instrument. When the Uvea protrudes through a Wound, it must be immediately replaced by a small Probe, in the mean time the Patient should continue to lie on his Back, and the Wound

must be carefully dressed with the White of an Egg, and a Mucilage of Quince-seeds, till it conglutinates: By this Method the Sight has been sometimes restored.

If the Disorder is become so inveterate, as not to yield to Remedies, pass a double threaded Needle, through the middle of the Tumor, towards its Bottom (*see Tab. XXXIX. Fig. 8.*); then, removing the Needle, tie together the two Ends of the Thread on the Right Side; and, next, the two Ends of that on the Left Side: Thus the Tumor will gradually decay, and at last fall off with the Threads.

But as this Ligature frequently occasions violent Pains, Inflammations, and Suppurations in the Eye, it may be safer to remove the Tumor by Incision. Thus, I took hold of a Protuberance of this Kind, which projected from the Eye, about the Length of a Joint of the Finger, with two Fingers of my Left Hand, and happily cut it off with a Pair of Scissars.

*St. Yves* proposes the following Method: When the Tumor has not overspread the whole Cornea, he passes a sharp crooked Needle, with a Silk Thread, through the middle of the Staphyloma. Then, having removed the Needle, and twisted the two Ends of the Thread together, he takes them in his Left Hand, and with a Knife, or Lancet, gradually frees the Tumor under the Thread, till he can conveniently with the Scissars cut it entirely off. He then applies Spirit of Wine diluted in Water to the Eye, as is done for the Cataract. By this Method the Staphyloma is not only removed, but the Cornea is almost entirely heal'd, or else leaves but a very small Aperture in the middle of the Wound; whence indeed the aqueous Humour is continually discharged, as fast as it is secreted in the Eye, but without any Trouble to the Patient, because it flows gently with the Tears, through the Lachrymal Passages, into the Nose.

When the Staphyloma affects the whole Cornea, as in *Fig. 4. 5. 6. 7.* *St. Yves's* Method is certainly the most expeditious, by which not only the Cornea, but, also, the Iris and Uvea, and about a Line's-breadth beyond the Ring, where it joins the Albuginea, are entirely cut out circularly. Then all the Humours of the Eye being discharged, the remaining Coats are contracted into a smaller Compass, and the Wound itself at last closes. An artificial Eye may now be used, nearly resembling the other Eye, and nicely adapted to the Part. Thus, the artificial Eye may be moved by the Muscles like a natural Eye, and the Difference be scarcely perceivable. A Cure of this kind I perform'd myself.

#### THE METHOD OF DISCHARGING EXTRAVASATED BLOOD BY AN INCISION IN THE CORNEA.

When by external Violence a small Quantity of Blood is extravasated within the Eye, it may generally be dissipated by applying the Resolvents already prescrib'd. But when the Quantity is so large, as not to yield to this Method, it ought to be discharged by opening the Cornea, in the manner directed under the Article *HYPONION*, to prevent the stagnating Blood from destroying the Sight.

We see, in the History of the Royal Academy of Sciences for *An. 1709.* an Operation of this kind performed by *Gaudolphus*. He immediately made a transverse Incision through the Cornea, and discharged the extravasated Blood, not only without Pain to the Patient, or any deforming Cicatrix, but the Sight was entirely restored; altho' he was obliged to open the Wound three times, because of the great Quantity and strong Adhesion of the Blood. In order to conglutinate the Wound, he applied Compresses dipt in four Ounces of Plantain-water, mixed with two Ounces of the Aqua Sclopetaria; so that in about eight Days the Cure was completed; nor could the wounded Eye be distinguished, except that its Pupil appeared a little broader, which seemed rather the Effect of a Blow, than of the Operation.

#### OF THE DISTENSION, PROLAPSUS, FUNGUS, AND CANCER OF THE EYE.

Sometimes the Eye is so violently inflamed and swelled, that the Lids cannot contain it, but it becomes projected from its Orbit. This Disorder not only occasions a prodigious Deformity, Pain, and Trouble, but is almost always attended with Danger of Blindness, or a Cancer. The monstrous Deformity produced by it may appear from its Representation in *Tab. XXXIX. Fig. 14. 15.* *Paré* relates a Case in which the Eye was so vehemently distended, that it burst its Coats. This is termed by the *Greeks* a *Proptosis*; and sometimes, when the Eye is distended with an aqueous Humour, an *Hydrophthalmia*. Some call it *Oculus Bubulus*, or *Bovinus*, or *Elephantinus*, from its Resemblance to the Eye of an Ox or Elephant. Various are the Causes of this Disorder. Sometimes it proceeds from a violent Inflammation, or an Obstruction, of the Vessels from a Redundancy of peccant Humours; sometimes from external Violence; and sometimes from a scirrhus or cancerous Disposition of the Eye; to which last Causes may be imputed those Instances given by *Hildanus*, *Cent. 1. Obs. 1.* and *Muyt*, *Dec. 12. Obs. 1.* and, lastly, the Case which I have represented in *Tab. XXXIX. Fig. 14. 15.* Some Physicians have likewise named this Disease *Fungus*, or *Picus*, from its Figure, which however are really different Diseases.



If the Disease is recent, and the Eye not altogether deformed, the Hydrophthaimia may generally be resolved by Bleeding, Purg- ing, Sudorifics, Velicatories, and discutient Fomentations. But, if the Disorder be too stubborn to yield to Resolvents, the Mat- ter must be discharged by the Operation of the Paracentesis, or Tapping, as in other dropical Cases, which must be performed by the Trocar, and repeated every Day, or every other Day, so long as may be necessary. At every Dressing a concave Plate of Lead should be firmly secured upon the Eye, till it be reduced to its natural Figure. By this Method *Nuck* tells us he com- pleted a Cure, though he always made the Wound in the Cornea itself. But as that may leave an unseemly Cicatrix, I rather make my Perforation with a Lancet in the Sclerotica; and, after dis- charging the Matter, I dress the Eye with Lint dipt in Rose- water, mixed with the White of an Egg, and lay a leaden Plate above it, over which I put a thick Compress, thoroughly soak'd in warm Spirit of Wine, and secure the Whole with a Bandage; not neglecting to continue the internal Medicines, Purges, and Sudorifics; till the Eye be reduced to its natural State.

When the Sight and natural Figure of the Eye are destroyed, and the Symptoms and Pains increase, there remains but one, and that a deplorable Remedy, by making a transverse Incision in the Coats of the Eye, and discharging the contained Matter. The Eye must be debrided, as in other Ulcers, and covered with a Compress, and tight Bandage, the sooner to reduce its Size, that the Eye-lids may cover it. But if the Eye still continues so large as not to be contained within the Lids, there will be a Necessity of cutting off, with the Knife or Scissars, the superabundant Part; by which means the Deformity may be afterwards the better concealed by an artificial Eye. Sometimes the Surgeons may cut out the Cornea by a circular Incision, as was directed in the Staphyloma.

*Bartischius*, *Hildanus*, and *Muyfus*, have contrived a crooked Knife, hollowed like a Spoon, for extirpating the Eye in this Disease. But, besides the Difficulty of sharpening this Instru- ment, it will be found sufficient to cut off only that Part of the tumefied Eye, which prevents the Lids from closing. More- over, there is Danger of severely wounding some of the slender Bones of the Orbit of the Eye by this crooked hollow Instru- ment. But, when, because of a scirrhus or cancerous Affec- tion, it is necessary to extirpate the whole Eye, the Operation may be performed, with equal Convenience, with the straight Knife, (see *Tab. XXXI. Fig. 14*) which was all I used in extirpating those monstrous Tumors represented in *Tab. XXXIX. Fig. 14. 15*. There are some who think it the mildest Practice to free the Eye so far from its Orbit by a Knife, till a Ligature can be made about the protuberant Part, in order to remove it by that means, like other Excrecences. But the violent Inflam- mation, Pains, and Convulsions, which this Method occasions, either kill the Patient, or put him into extreme Danger. When therefore the Eye is affected with a Scirrhus, or Cancer, even when it penetrates to the very Root, there is scarcely any other Way of relieving the Patient, than by carefully freeing the Eye from its Orbit, and entirely extirpating it. The Wound may be afterwards debrided, and healed with a vulnerary Balsam.

Sometimes it happens, after the Operation is performed, that a new fleshy Excrecence, growing over the Eye, threatens a fresh Tumor: To prevent which, dress with Lint dipt in Aqua Pha- gedanica, over which put a Leaden Plate, and depress the Eye with a very tight Bandage. It is, also, to be observed, that Can- cers in the Eye, like those in other Parts, will very often return after they have been seemingly cured, by the Treatment here proposed; and must be again removed by the same Practice; as may appear from the fore-cited Case, given us by *Muyfus*. When these Disorders arise from a Caries or Spina Ventosa of the Bones of the Orbit of the Eye, if they will not yield to Mer- cury, as is sometimes the Case, the Physician must then be con- tent to palliate the Disorder, and relieve the Pains, since a total Removal is frequently altogether impracticable.

#### OF ARTIFICIAL EYES.

Artificial Eyes are contrived for concealing the Deformity produced by the Loss of an Eye. They are now made of con- cave Plates of Gold, Silver, or Glass, stained so as to resemble the natural Eye. The nearer it approaches the sound Eye in Size, the more firmly will it stay within the Eye-lids. It will be necessary frequently to clean the artificial Eye, lest, by Sordes gathering upon it, the Fallacy may be discovered; and, lest one should be lost, broken, or disfigured, several should be provided, immediately to supply its Place. When the Patient goes to Bed, let him take out the Eye, and clean it, and replace it in the Morning. But, that it may be taken out, and put in, with Neat- ness and Convenience, the Surgeon, in the Operation, must take care to remove so much of the disorder'd Eye, as will make room for receiving the artificial.

The more exactly the artificial Eye is fitted to the Eye-lids, the more perfectly will it perform the Motions of the natural Eye, which it will receive from the remaining Muscles. For this Reason we advised no more of the diseased Eye to be re- moved, but what was preternaturally projected, except when a

Scirrhus, or Cancer, requires a total Extirpation; and then the artificial Eye can have no other Motion, than what it receives from the Lids.

Sometimes I have observed these artificial Eyes irritate the Parts, and produce Inflammations and Defluxions, and the like Disorders, especially if they are not made to fit exactly, so that they will often inflame and weaken the sound Eye. In these Cases, the Patient should either provide himself with an Eye which is better adapted, or else totally lay them aside, rather than lose the Use of his sound Eye.

#### OF THE STRABISMUS, OR SQUINTING.

We frequently meet with Persons whose Eyes, instead of being directed to an Object, are turned towards the Corners of the Eye- lids: This Disorder is called *Strabismus*, or *Squinting*. Sometimes one Eye, but oftener both are thus affected. This Misfortune is frequently produced in Children, by letting them constantly suck one Breast, or by placing them in the Cradle, so that they al- ways look the same Way to the Light. But this Disorder is more frequently caused in Children by convulsive or epileptic Motions, to which the Muscles of their Eyes, as well as of their other Limbs, are extremely subject. Lastly, It may proceed from a Spasm and Rigor, or from a Palsy in some of the Muscles of the Eye, or from some Defect in the Retina; for, when that Part of the Retina which is opposite to the Pupil, and receives the Impression of the Object, is from any Cause render'd insen- sible, the Patient is then obliged to turn his Eye obliquely, till the Pupil directs the Rays, from the Object, upon some other sound Part of the Retina.

Squinting is a Disorder which is hardly ever cured without Difficulty, more especially in Adults, and when caused by some Defect in the Muscles or Retina of the Eye. In young Infants it may be remedied, according to the Directions of *St. Yves*, by frequently placing them before a Looking-glass, that their Eyes may be directed towards the Image of their own Face. Those more advanced in Years may be assisted by reading very small Writing, or inspecting very minute Objects, provided you ob- serve and direct them to turn their Eyes even; they should likewise bathe their Eyes with *Hungary Water*, or anoint them with the Balsam of *Fioravanti*. Some have not unsuccessfully attempted to cure this Disorder by a sort of Mask Eye-swatch, as represented in *Tab. XXXIX. Fig. 16*, taken from *Solin- gen*. This Method is, also, recommended by *Bartischius*, in his *Ophthalmoduleia*. But lest Children should look strait through the Aperture, only with one, and squint in the mean time with the other, it will be best to bind up one Eye till the other is rectified, and then to remedy the other in the same manner; which is seldom practicable, through the Fretfulness of Infants, and other Impediments. *Heister. Chir.*

Authors differ in their Opinions, as to squint-eyed People: Some pretend, this Deformity is a Defect of the transparent Part of the Cornea, which is too convex, or placed obliquely. Others say, the Fault is in the Crystalline. But they are both mistaken; for the Defect is in the Muscles, as I shall make appear.

When a Person looks at an Object, and does not turn his Eye towards it, he is said to squint. Persons thus affected squint sometimes with one Eye, and sometimes with the other; sometimes both Eyes seem to squint together: Some squint very little, when the Object is near; and more, when it is at a great Distance: Some squint with one Eye, when near the Object; and with the other, when farther from the Object. When the Eye, that does not squint, is shut, the Eye, that squinted, looks strait; then, if the Eye-lid be opened, the Eye, that looked strait be- fore, is found to squint.

This different Inspection of squint Eyes demonstrates a Dis- parity of Movement in one of the strait Muscles of the Eye, which is produced by the unequal Influx of the animal Spi- rits in all these Muscles: This regards only those who squint from their Childhood. This Disease may happen to Persons of any Age; but, in this Case, it commonly proceeds from a Palsy in one of the strait Muscles of the Eye. Persons thus affected see two or three Objects, and sometimes more, when they look but at one; these People are generally said to see double. This Accident happens for this Reason, because the two Pupils are not in a parallel Line; so that the Rays of Light, reflected from an Object, fall, in one Eye, on a Fibre, and, in the other Eye, on another Fibre, which does not meet in the same Point, from whence the first takes its Rise. As the Impression made by the Light in both Eyes affects different Fibres, which do not flow from the same Point, a double or triple Sensation is transmitted to the common Sensory; for which Reason a Multiplicity of Objects is seen.

To explain this more amply: Vision is performed by means of the nervous Fibres, which are distributed to all the Parts of the inner Cavity of the two Globes of the Eyes; and these Fibres coincide in the same Point of the Brain whence they rise; the Fibres on the Side of the great Angle in one Eye correspond with these on the Side of the great Angle in the other Eye. When they equally receive the Light reflected from an Object, a single Sensation only follows, in the Place of their Origin, for which



which Reason there is but one Object seen; but, as the Pupil of the Eye, which squints, is not in a parallel Line with the other, it happens, as I just observed, that some Fibres in one Eye are moved by the Light, whilst in the other Eye the Light makes its Impression on Fibres which do not correspond with the former: Hence follows a Confusion in Vision. To make an Experiment of it, let a Person press, with his Finger, one of his Eye-lids, and force down the Globe of that Eye somewhat lower than the other; then, the Pupils not lying in a parallel Line, or of an equal Height, the Person sees double, for the foregoing Reason. All the Difference between Persons who squint from their Childhood, and those who squint in a more advanced Age, consists in this; the first do not see double, as the latter do. In the first, when the well Eye is shut, the Eye that squints, turns equally of all Sides: But, in the latter, when the good Eye is shut, the other Eye cannot be brought to the Side opposite to that, towards which the Pupil is turned: This shews that this Defect, in Children, is caused by an unequal Influx of the animal Spirits, either in the adducent or abducent Muscles of the Eyes, which makes the Globe turn of one Side: But in grown Persons, when one of the Muscles becomes paralytic, the Eye remains as immovable towards one Side, by the Contraction of the antagonist Muscle, neither can the Eye move itself towards the Part opposite to that which is relaxed. Having thus distinguished the Difference that occurs in this Disease, when from the Infancy, and of the same when it happens in a more mature Age, we must now propose its proper Remedies: I shall begin by the Cure of Children; it consists in settling the regular Course of the animal Spirits in those Muscles: To which the following Method is highly conducive.

Let the Child sit before a Looking-glass, and, when he is thus seated, make him look directly at his Face in the Glass, so that each of his Eyes may look precisely at the Pupil of that Eye which corresponds with it in the Glass: By making him perform this visual Exercise, Morning and Evening, for a Quarter of an Hour, the Sight, at length, becomes strait: Besides this, get him to read very small Writing, or to work at fine Work, which requires a great Application of the Sight. Care must be had, when Children look at any Object, that they do not lay it sideways; for whilst the Organs are tender, they must be accustomed to look strait. Whilst these Exercises are performing, spirituous Remedies must be applied to the Eye, that they may animate the Spirits in the nervous Fibres, and invigorate the relaxed Muscle to perform its proper Action. The Queen of Hungary's Water, Fioraventini's Balsam, and such Remedies, may be applied with Success; the Forehead, the Temples, and upper Part of the Eye-lid, must be rubbed with them three times a Day.

As to Barnicles, which have been long in Use; when they are put on Children, it commonly happens, that they only look thro' the Hole of one of these Barnicles, while the other Eye remains askew; for which Reason I have invented a kind of Nose, like that of a Mask: It covers Part of the Eye that squints, or of both Eyes, when they both squint; it must reach no farther than the Pupils, which must be left quite uncovered: We are sometimes obliged to cover entirely the strait-looking Eye, so that, by looking singly, it may be habituated to look strait.

In Persons advanced in Years, this Indisposition may be caused by getting Cold in the Eyes, or in the Head, or by a Distillation of Humours, which are discharged on the Muscles of the Eye: Sometimes the Rheumatism in these Parts produces the same Effect.

This Disease is cured by Bleedings, Purges, and sometimes by an Emetic; the Steam of hot Coffee, and of the Spirit of Wine, must be applied to the Eye; a Decoction of Eye-bright and Saffras must likewise be drunk. All Remedies proper for the Palsy are serviceable in this Case: Such are the hot mineral Waters, &c.

This Indisposition is sometimes owing to an Heat of the Viscera, or to Vapours conveyed to the Head: Then we are obliged to bleed in the Foot; to prescribe cooling Drinks, the House-baths, and sometimes the cooling mineral Waters. In this Case, the Advice of a Physician is requisite.

#### OF WEAK VISION.

St. Yves divides Vision into three Species; the good Vision, that of the Presbytae, and that of the Myopes; all which Species may be variously weaken'd.

I mean, says he, by Weakness of Sight, when Objects are not seen as distinctly as usual; for Instance, when a Person cannot see to read. All the three Sorts of Sight are liable to this Indisposition: The good Sight is impaired, when the Eyes become moist and weeping; the Serosity, which constantly moistens them, injures the Sight very much. Persons afflicted with this Infirmary must have recourse to convex Spectacles, which must be so proportioned to their Sight, that they may be able to read or work; which they cannot well do, without this Sort of Spectacles.

The Presbytae cannot distinguish small Objects, or minute Characters, without straining their Eyes, and discomposing their Head; yet they can see distinctly larger Objects, at a considerable Distance. This proceeds from the too great Convexity of the Crystalline, which occasions Rays, reflected from Objects near

the Eye, to diverge from the Place where they should unite, when Vision is perfect: The same does not happen, when the Objects are distant, because the Rays, reflected from them, converge more; and thus they have a Focus, in just Proportion. In order to remedy this Infirmary, let the Patient, at first, use Glasses which do not magnify; and from them he must pass gradually to more convex Spectacles, which shorten the Focus.

The Sight of the Myopes is so short, that they can neither read, nor distinguish Objects, without concave Glasses: This is owing to the too great Convexity of the Crystalline. The Concavity of their Spectacles must be proportioned to the Shortness of their Sight.

It often happens, after the Use of Spectacles for many Years, that the Crystalline re-assumes its proper Form, so that they are no more required. It has been, also, observed, that several Persons, neither Myopes nor Presbytae, have been necessitated, on account of a Weeping, to wear Spectacles; and, when this Disease ceased, they have laid them aside.

For the most part, Spectacles are either convex, or concave; they both have different Degrees, or Focuses: There are, also, some flat and even in their Surface; they are called Conserve, and are made either of green, or of white Glass. Convex Spectacles, of the first Degree, magnify but very little, and may be used as Conserve; the rest magnify, in proportion to their Convexity.

That Place in Spectacles is called the Focus, where the Rays of Light, which pass through the Spectacles, are united in a Body that is placed opposite to the Light; and the Degrees of Spectacles are measured by the different Distance of their Focus.

It is a Caution of great Importance, not to use Spectacles too soon; and, when a Person has once begun to use them, not to change them too often; for, at length, he cannot get any proper for his Sight.

Those Persons called *Myopes* ought to use concave Spectacles, when they read, as little as they can: They must, also, begin with the least concave.

I think it necessary to say something of the Means to preserve the Sight, and to lay aside the Use of Spectacles: Though, perhaps, this Method may not succeed to all Persons, yet several, by following it, will be freed from the Trouble of Spectacles. I shall exclude the Myopes, for no Remedy can lengthen their Sight; the good Sight, and that of the Presbytae, can only receive Benefit from this Method.

The good Sight, as we have already observed, is often weaken'd by a redundant Serosity, which perpetually fills some Peoples Eyes. In this Case, I use an ophthalmic Water, which, applied three times a Day, dries up the Moisture, and strengthens the Parts. Remedies that will evacuate the Pituita of the Brain, such as Purges, and smoking Tobacco, are serviceable in this Disorder of the Sight.

The Presbytae may be freed from the Use of Spectacles, by restoring their Crystalline to its natural State; the following Tincture will be very serviceable in this Case:

It is composed of Sage, Rosemary, Lavender, and Thyme, when they are in Flower, of Wormwood, and Origany, of each an equal Quantity: Let them infuse in Brandy, the Space of four Days; then let the Brandy be cleared off, and used in the following manner: Let one Part of this Brandy be mixed with four Parts of the distilled Water of Blue-bottle, or *Cyanus fegetum*, or with Eyebright-water: Then put it into a Spoon, which you must heat warm, to the Brandy. Let the Inside of the Eye be bathed with this Mixture, twinkling the Eye-lids, that they may imbibe the Water, and convey it round the Eye: This must be done four or five times successively, Morning and Evening.

When this Mixture has been used in the foresaid manner, and Degrees of Strength, for a Fortnight, then let only three Parts of the fore named Waters be mixed with one of the Brandy. When the Eye is accusom'd, for some time, to this Degree; then let Brandy, and the said Waters, of each one half, be mixed: Let this be the Standard. These Degrees are increased for this Reason, that the Brandy, by its Pungency, may stimulate and vellitate the Eye; by which the nutritious Juices of the Eye will be more inspirited and attenuated, and their Quantity, as well as Fineness, will be increased; so that by the Help of one and the other the Crystalline may be restored to its natural State.

#### PRESAGES FROM THE EYES.

Prognostics from the Eyes are the more considerable, in that these, above all other Parts of the Body, furnish the judicious Observer with the surest Marks for predicting the Events of Diseases, according to that Sentence of the divine Hippocrates, 6 Epid. Sect. 4. Aph. 26. According to the State of the Eyes, so is that of the Body; and so their Colours change together for the better or the worse. If the Eyes be clear and lively, the Body may be judged to be in a good Condition; for, as Galen rightly says, in his Comment on the forequoted Place, a good Colour of the Eyes shews the Body to be in good Health. But we shall treat of such

Signs



Signs as are afforded by the Eyes for predicting the Death or Recovery of the Patient; and, first, we shall insist on those which are hopeful and salutary; and, afterwards, on those which are pernicious and fatal.

First, then, the Eyes of the Patient have a promising Appearance, and give no small Hopes of Recovery, when in Magnitude, Figure, Situation, Motion, Colour, Vision, and Splendor, they resemble the Eyes of Persons in Health; for sound and robust Eyes are always a good Indication; and such are those Eyes, as *Galen* observes, in his forecited Comment, which are of a lively Colour, full Bulk, and contain a splendid Humour: Eyes so qualify'd *Galen* calls sound and robust, because such an Appearance must be owing to the great Plenty of luminous animal Spirit, proceeding from the Brain to the Eyes; but, on the contrary, in Bodies weaken'd by Diseases, Indications of this Nature are not so much to be regarded, nor much Danger to be apprehended from them. Good Eyes, then, are like those of Persons in Health, of a florid Colour, full, splendid, seeing forward, at a Distance, through a luminous Air, without Molestation, free from Redness, Lividness, or Blackness, and without Tears, or Excrements, called by *Hippocrates*, *λῆμναι*, *Lemæ*, adhering to their Angles: These we may always call good Eyes, as indicating a good State of the Body, and of the Head in particular.

But for our more secure Prognostication from the Eyes, we are to consult and consider other Signs appearing at the same time, which if they happen, also, to be good, we may with Confidence predict the Patient's Recovery. For the Eyes by themselves are incapable of determining our Judgment; nor have they any thing of Certainty, to which we may safely trust in forming a Prognostic; since, in some continual Fevers, the Eyes sometimes make a good Appearance, when the Fever is taking a fatal Turn, though indeed it rarely happens for the Eyes to be in a good State, when the Patient's Affairs tend to a fatal Issue; and therefore good Eyes generally afford no small Hopes of a Recovery. But not only those Eyes which are supposed to be good, but sometimes bad Eyes, may, by Accident, prove salutary Indications; for Instance, Eyes avoiding the Light, as incapable of bearing it, weeping Eyes, intensely red, shining, dark, dim, dull, distorted, rumid, hollow, closed Eyes; provided they put on such an Appearance against an approaching Crisis: I except from those before-mentioned such Eyes as are not render'd so by the Disease, but from some extrinsic Cause; these afford nothing of Certainty, because they appear thus changed immediately at the Beginning, at a time when they are quite incapable of suffering a critical Alteration, as is implied in what *Hippocrates* says, *Lib. Prognost.* "That in the Space of three or four Days the Eyes become and appear bad, through the Force of the Disease." External Causes are easily understood from the Patients themselves; and of these we find *Galen* speaking, *Com. 1. in Prognost. Text. 10.* where he says, that "Sometimes in the Beginning of a Disease, through much Drinking of Wine, or violent Vomiting, the Eyes avoid the Light, shed Tears, are distorted, or swelled, swell, or appear with red Veins." But at the Approach of a Crisis, when Nature is contending with the Disease, these bad Symptoms appear in the Eyes.

Some Eyes, for Instance, flow with Tears, at the Approach of a critical Hemorrhage from the Nose, according to *Hippocrates*, *1 Epid. Stat. 3.* "From those who under acute Fevers, and especially those of the burning Kind, are affected with a spontaneous or involuntary Flux of Tears, you are to expect an Hemorrhage from the Nose, if there be no concomitant destructive Signs; otherwise Weeping prognosticates not an Hemorrhage, but Death." We are to make a Distinction of Tears into voluntary, and involuntary or spontaneous: These last with critical Signs indicate a critical Eruption of Blood; but voluntary Tears never afford us any solid Foundation for grounding a Prognostic. Agreeable hereto is that of *Hippocrates*, *4 Aph. 52.* "In a Fever, or any other Distemper, Tears flowing voluntary have nothing improper or unusual [*ὅθεν ἀτοπον*]; but involuntary Tears are more unaccountable, [*ἀντοπώτερον*]," or as *Galen*, in his Comment, reads it in the positive Degree, "*ἀτοπον*, unaccountable." But, in order to explain the Sentiments of *Hippocrates*, as deliver'd in this Aphorism, that they who weep voluntarily do nothing absurd, or that argues a Diminution of Reason, but Tears falling involuntarily from the Eyes are more unaccountable, or import a greater Defect, and are more to be suspected than the other; and in the Passage above quoted, that involuntary Tears, where they are no Signs of a Crisis, portend Death; and, also, *6 Epid. Sect. 1. Aph. 16.* "That in acute Diseases, where the Patient is much oppressed by the Violence of the Disorder, voluntary Tears are a good Sign, but involuntary, the contrary." We shall endeavour to obviate all Difficulties by observing, that Tears are said to be spontaneous on two Accounts: First, When they flow without any Desire of the Patient, being such as *Hippocrates* means by *ἀκρίβην*, and *ἀκρίστα*, in the Passages above render'd, that is, flowing spontaneously, or of themselves, without the Concurrence of the Will or Desire of the Patient. In the second Place, Tears are said, in another Sense, to be spontaneous, or to flow spontaneously, when they flow at the Desire, or with the Will, of the Patient; and therefore *Galen*, *Com. 1. in 1 Epid.* to avoid all Ambiguity,

and for the better Illustration of the Sentence, and the Truth, chose to express himself by a Word which signified not *spontaneous*, but *involuntary*; for *spontaneous* is spoken with reference sometimes to the Patient, sometimes to the Disease. But, to remove all Possibility of Mistake, let us distinguish Tears into voluntary and involuntary, which latter were sometimes called by *Hippocrates*, *spontaneous*, because, as was said, they flowed spontaneously, or without the Concurrence of the Will, and those *non-spontaneous*, which flowed in some measure at the Desire of the Sick. But, to prosecute our Design, we say, that voluntary Tears are of no important Signification towards a future Event; and therefore we are told by *Hippocrates*, in the above cited Aphorism, that such Tears portend nothing irregular, or bad; and justly he might say so, since they proceed not from the Disease, but the Will, of the Patient; whereas involuntary Tears, which flow without the Will of the Sick, are always bad, except they precede and portend a Crisis, agreeably to that Passage of *Hippocrates*, *1 Epid. Stat. 3.* above quoted. But, that Tears may be judged critical, it will be necessary, in order to a good Crisis, that Signs of Concoction should have preceded them; in which Case, they portend a Crisis, and very well deserve our Regard.

The same Event may often be predicted, from Light passing before the Eyes, Dimness, and Rednesses in the Eyes; which Signs, together with Tears, *Galen*, in his third Book of *Crisis*, reckons among Prognostics of an impending Hemorrhage. Sometimes, before such an Event, there is a Redness of the Eyes, attended now-and-then with a Redness of the Cheeks and Nose: A Dulness of Sight, also, if attended with a Pain of the Head, is sometimes succeeded by an Hemorrhage from the Nose: This is the Sentiment of *Hippocrates*, *Lib. Prognost.* where he says, "Some, in the first Period, [*ἐν τῇ πρώτῃ περιόδῳ*] are affected with an Hemorrhage from the Nose, and are much relieved by it; but we are to examine whether there be any Pain of the Head, or Dimness of Sight; for, if there be any thing of that Nature, it tends to such an Event." Such an Hemorrhage may, also, be predicted from the Patient's being disorder'd at Flashes of Light striking the Eye, attended with Deafness, Heaviness of the Head, and a Distention of the Hypochondria, as we read *Coac. 195.*

That a Redness of the Eyes prognosticates the like, we are taught by the Author of the *Prorrhetic. Lib. 1. T. 137.* where he says, that "Pains of the Neck, with intensely red Eyes, forebode an Hemorrhage." And to the same Purpose, *Coac. 166.* we read, that "They who are affected with a Cephalalgia, and a Catochus, attended with Pain, and a great Redness of the Eyes, are relieved by an Hemorrhage from the Nose." But this Symptom must be presumed of true Signification only when preceded by Signs of Concoction; for, in the Beginning or crude State of a Disease, red Eyes are never a good Prognostic.

Sometimes, at the Approach of a Crisis, there is a Perversion and Distortion of the Eyes, as it happened to the Patient in the Garden of *Dealcus*, *3 Epid. Aeg. 3.* of whom it is said, that "On the ninth Day he was seized with a Rigor, and had an high Fever; sweated, and was cold; fell into a Delirium, had his Right Eye distorted, with a Dryness of the Tongue, Thirst, and Want of Sleep." *Galen*, commenting on this Place, says that "A Delirium and Distortion of the Right Eye, on the ninth Day, as there described, are Symptoms which usually happen in Crises."

Closed, and now-and-then twinkling, Eyes sometimes forebode an Hemorrhage, according to *Coac. 77.* where we read, that "They, who, under a continual Fever, lie speechless, with their Eyes shut, and now-and-then twinkling, if seized with Vomiting, and an Hemorrhage from the Nose, succeeded by a Recovery of their Speech and Senses, escape; otherwise they fall into a Dyspnoea, and die in a short time." For Eyes thus affected indicate the Head to be oppressed with a Redundance of Humours; and if the Patient, in this Case, be favoured with a considerable Evacuation, he escapes by a Crisis; Nature, by a copious Excretion, freeing itself from that Load of Humours under which the lay oppressed.

A Change therefore in the Eyes, or their Motions, or some remarkable Disorder or Defect therein, often proceed from a Crisis, and therefore are no bad Signs, but Prognostics of a good Crisis; and this Judgment will be confirmed, if no bad Sign appears in Conjunction with them, and Signs of Concoction have preceded them; but if the Case be the reverse, they are not only bad, but generally mortal Signs.

Now there are three Things requisite to a good critical Sign: First, That it be consequent to Signs of Concoction. Secondly, That it be not attended with any bad Sign. And, lastly, That it be succeeded by some Evacuation in which the Patient shall find considerable Relief. To this Purpose is that of *Hippocrates*, before quoted, *1 Epid. Stat. 3.* that "Involuntary Tears, in acute Diseases, signify an Eruption of Blood, if unattended with other destructive Signs; but if these, also, appear, they jointly signify not a Crisis, but Death."

But we have said enough of salutary Signs observable in the Eyes: We shall now treat of such as are of pernicious or fatal Signification; and here, in general, it is bad and pernicious, un-



der acute Diseases, for the Eyes to appear bad or disorder'd; as when they shun the Light; shed Tears; appear red or inflamed, or with intensely red Veins in the White; are livid, or black; have a fierce, grim, or fixed Aspect; are dull, heavy, weak, or not robust, hollow, tumid, prominent, tabid; dry, squalid, dusty, closed, or with the Eye-lid half-shut, half-open; are suspended, unstable, concreted, have too much or too little Splendor, or are cloudy and obscure, void of Splendor, and infested with pituitous Excrements. Such Eyes as these, consider'd in themselves, are never good, and are only so by Accident, when, Nature struggling with the Disease, they foreshew a Crisis, and are reckon'd among critical Signs.

All these Signs just mentioned, which, in acute Diseases, are observable in the Eyes, shew the Condition of the Patient to be at least very doubtful. But some Signs are plainly fatal, as when the small Veins in the Eye appear livid and black, and the Patient has lost his Sight, as well as Hearing; when the Eyes are destitute of all Splendor; and when all the above-mentioned Signs concur with some fatal one; and most of all, when they appear on a critical Day, attended with critical Signs, which determine nothing, or leave us short of a Crisis.

But for more Perspicuity we shall treat particularly of these Signs; and we shall begin with those which *Hippocrates* mentions, *Lib. Prognost.* "If the Eyes, he says, avoid the Light, or shed Tears involuntarily, or are distorted, or become one less than the other; if the White of the Eye be red, or a small Vein thereof appear livid or black; if pituitous Sordes [*λίμυς*] infest the Pupil; if the Eyes are suspended [*ἐκκρεῖν ὀφθαλμοί*]. See *ENAEOREMA*], protuberant, or remarkably hollow; or the Pupil appears squalid, and void of Splendor; or the Colour of the Face be quite altered; all these are to be esteemed bad and pernicious Signs." But to these we may add the Limitations of the same Author, in the Case of the *Facies Hippocratica*; which are, "Provided these Symptoms proceed not from some external Cause, as Want of Sleep, Fasting, an immoderate Looseness, Drunkenness, or some such Circumstance."

But we shall proceed, as we said, to consider each Symptom more accurately under its proper Head, beginning with Sight, or Vision. And when it happens in acute Diseases, that the Eyes avoid the Light, and can by no means endure to behold the Splendor of the Air, which was an usual Symptom of the Pestilence at *Padua* some time ago, and generally mortal, it is pronounced by *Hippocrates*, as we just now observed, a pernicious Sign, and very justly; for, as *Galen* observes, Eyes avoid the Light, on account of the Weakness of the visive Faculty, which sometimes labours under an Affection of the Orifices, as in a Lippitude, and sometimes is itself affected, which is a mortal Sign; and this latter Case is distinguished from the other, in that the Orifices of the Eyes are not at all affected.

For a sick Person under an acute Disease not to see, is fatal, and most of all when the Strength is exhausted, according to that of *Hippocrates*, 4 *Aph.* 49. "In a continual Fever, if the Patient cannot hear, or cannot see, the Strength being, also, exhausted, Death is near at hand."

Obscurations of the Eyes, or Dimness of Sight, are, also, condemned by *Hippocrates*, 6 *Epid. Sect. 1. Aph.* 16. "For in acute Diseases, says *Galen*, an Obscuration of the Pupil indicates a Weakness and Decay of the visive Faculty, unless it happens critically, as when it is attended with Signs of Concoction, and other Signs indicating a Crisis. But when it is accompanied with other bad Signs, particularly critical ones which fall short of a Crisis, of which Nature are all Evacuations by which the Patient is not relieved, or if it succeeds such Evacuations, it is a mortal Prognostic." In this Sense, perhaps, we are to understand the Author of the *Coac.* 105. when he says, "In long Diseases, small Tumors about the Ears, attended with repeated Eruptions of Blood from the Nostrils, and a Scotomia, are mortal."

For the Eyes to look dull, or the Pupil and interior Parts of the Eye to appear to a Spectator like those of dead Persons, is accounted by *Galen*, *Com. in Prorrh.* a most mortal Sign; which perhaps was meant by *Hippocrates*, 2 *Epid. Sect. 6.* in saying, that "They whose Eyes have lost their Strength are near to Death." This was the Case of the Wife of *Theodorus*, 7 *Epid. T.* 27.

It is a pernicious Sign, also, for the Eyes to be destitute of Splendor, as we are taught *Lib. Prognost.* But for them to appear blind in a mortal Disease, shews Death to be very near, as it was in the Case of the Son of *Antiphanes*, 7 *Epid. T.* 28. "Whose Left Eye was first affected with Blindness, and a Tumour, without Pain; and not long after he was taken blind, also, in his Right Eye, and the Pupils of his Eyes became very white and dry, and he died soon after his Blindness." They who attend on dying Persons, observe the Decay of Splendor in their Eyes, with the utter Loss of which the Sight is extinguished.

To Eyes obtuse, or dull, squalid, and without Splendor, as described in *Lib. Praenot.* are opposed Eyes which have a fierce, bold, or grim Aspect, as mentioned 6 *Epid. Text. 1. Aph.* 19. Eyes thus affected are peculiar to Persons in a Phrensy or Delirium;

and generally portend Convulsions, or, with other bad Signs, Death; agreeably to that Aphorism of *Hippocrates* just mentioned, which says, that "A Fierceness of the Eyes portends a Delirium; and a Distortion [*κατάκλυσος*] or Sinking [*ἐπίψυς*] of the Eye-lids are pernicious." Eyes thus affected in Phrensy signify Convulsions succeeded by Death; for Convulsions, coming upon a Phrensy, are most pernicious; and mortal Phrensy terminates in Convulsions. Upon this Consideration the Author of the *Prorrh.* *Lib. 1. T.* 71. If we may believe *Galen*, would have such Patients left to Nature, and treated them not with Medicines, when he says; "They who are molested with black Vomitings, have lost their Appetite, are delirious, have a fierce Cast of the Eyes, or have them closed, are not to be purged; for it would be destructive." In Conformity to this Precept, several of our most learned Physicians have made it a Rule to themselves, never to prescribe Cathartics for Patients in such mortal Circumstances, that the Art of Medicine might incur no Disgrace by such Practice.

The Fate of the Patient may, also, be predicted from the Magnitude of the Eyes, as when one appears bigger than the other; for, among other pernicious Signs mentioned by *Hippocrates*, *Lib. Prognost.* one, we find, is for the Eyes to appear one greater than the other.

It is no less fatal, in a dangerous Disorder, for the Eyes to appear greater than ordinary, as indicating the Head to be oppressed with a Redundance of Humours, and an Extinction of the Faculty; so that nothing resists the Flux of the Humours to the Eyes. This Sign was observed by *Hippocrates*, 7 *Epid. T.* 100. in the Son of *Nicolaus*, whose Right Eye, on the sixth Day of his Illness, appeared bigger than ordinary, and the next Day he died: And the same Sign was observed by him in the Wife of *Hermoptolemus*, as she lay dying, 7 *Epid. T.* 13.

Prominent or tumid Eyes are, also, enumerated by *Hippocrates*, *Lib. Prognost.* among those fatal Signs which appear in those Parts. The Eyes are usually thus affected from violent and inflammatory Pains of the Head, when, becoming replete with a Redundance of Heat and Spirits, they swell out, and appear prominent.

Hollowness of the Eyes, also, in acute Disorders, unless it proceeds from some external Cause, within the Space of three or four Days, from the Time when the Patient was seized, is accounted, *Lib. Prognost.* a pernicious Sign. For such a Symptom, as *Galen* teaches, in his Commentary on the Place, proceeds from an extreme Imbecillity, by which the Eye is deprived of all manner of Nutrition; and this indicates the Violence of the Disease to be so extraordinary, that Nature must of Necessity sink under it.

When the Eyes appear shrunk, and quite wither'd, as if they were destitute of Aliment, it proceeds from an Imbecillity of the natural Heat, the small Remains of which reside only in the internal Parts, and are incapable of diffusing themselves to the external Parts, in order to concoct Aliments for the Nutrition of the Eye: To which it may be added, by the same way of Reasoning, that the few Spirits which remain in the Heart, and internal Parts, cease to flow to the Eyes; whence those Parts must of Necessity wither, dry up, and appear hollow; for *Hippocrates*, 7 *Epid. T.* 33. observed an Hollowness of the Eyes immediately consequent upon a Wound in the Liver; and in many dying Persons, sometimes the Right, sometimes the Left Eye, have been observed to fade and wither.

There are, also, certain Motions of the Eyes which are of fatal Prognostication. Thus, for Instance, first, for the Eyes to be erect, or suspended [*ἐκκρεῖν ὀφθαλμοί*], which *Galen* interprets unstable, or wavering, is accounted by *Hippocrates*, *Lib. Prognost.* a pernicious Sign, as portending, according to *Galen*, a Delirium or Trembling, either of which is fatal: But that the Physician may safely venture to pass his Judgment, other Signs are, also, carefully to be consulted; for, in order to pronounce an Instability of the Eyes a mortal Prognostic, it is necessary, that it should be attended with some other deadly Sign. *Galen*, *Com. 2. in 1 Prorrh.* more clearly explains this Property of Instability, by saying that unstable Eyes are like an unstable, unmanageable Horse, always in Motion; whereas, on the contrary, concrete Eyes are fixed and Immoveable. Hence the Author of the *Coac.* 227. justly concludes, that quick Motions and Twinklings of the Eyes are of as bad Signification, as a Fixedness thereof; whence they are denominated concrete, firm, stable, and immoveable.

That fixed Eyes are always a bad Sign, we are taught by the Author of the *Prorrh.* *Lib. 1. T.* 46. where he says, *ὀμμα δμαυρήματα, φλοῖον, καὶ τὸ σπινθηρὸς καὶ ἀχλὺς αἰετὶς, κακόν.* "For the Eye to be dulled, vitiated, concrete, or confused, (as *Galen* explains the Word) is a bad Sign." He might more justly have said, a mortal Sign, because they are almost constantly fatal in acute Diseases, unless they happen to be so from some critical Cause. *Galen*, in his Commentary, writes, that a Concretion of the Eyes proceeds from an Immobility of the Muscles which move the Eyes; which Immobility is owing either to a Resolution of all the Muscles, or to their equal Tension, whereby they are attracted to all Parts alike; or, lastly, to an extreme Imbecillity



Imbecillity of the Muscles, which is certainly of most fatal Consequence; as are, also, the other Cases, as proceeding from a Convulsion of the Muscles, when the Original of the Nerves is affected by the Violence of an acute Disease.

*Galen, Com. 1. in 6 Epid. T. 27.* writes, that concrete, or immoveable Eyes, which *Hippocrates* very much condemns in the Text, (*6 Epid. Sect. 1. T. 16.*) indicate a perfect Extinction of that Faculty by which the Muscles, in their natural State, were moved. *Hippocrates, 5 Epid. Text. 50.* in the Case of the fair Daughter of *Nerios*, who died of a Stroke on the Crown of the Head, given her by a Wench, her Playfellow, with the Flat of the Hand, says, that, before her Death, one of her Eyes was affected with a Cataplexy, or Stupor [καταπλίξ].

With respect to the Posture of the Eyes, Distortions are of very fatal Prognostication, unless they happen to be critical, as in the Case of the Patient in the Garden of *Dealces*, *3 Epid. Sect. 1. Aeg. 2.* who, in the ninth Day of his Illness, was affected with a Distortion of the Right Eye. *Hippocrates, Lib. Prognost.* reckons Distortions among other pernicious Signs belonging to the Eye. But it is necessary to make a Distinction here; for sometimes, as *Galen* says, *Com. 1. in Prognost.* the Eyes are distorted through a Convulsion of the Muscles which move them, as it often happens in Fevers, on account of the Multitude of Humours; and, if no more than such Redundance be indicated, nothing can with Certainty be predicted from the like Distortions of the Eyes. Generally, however, in acute Distempers, the Eyes are perverted and distorted, not from such a Cause, but from the Disease affecting the Original of the Nerves, which is the Brain, and therefore highly pernicious. We conclude, then, that Perversions and Distortions of the Eyes are constantly bad, when proceeding from the Multitude or Redundance of the Humour, which is least to be dreaded; or from a Driness of the Muscles: But if they happen in burning Fevers, or Phrensies, they prognosticate nothing but Death; and that most of all, when they appear with Signs of the Extinction of the Faculty, indicating an extreme Imbecillity, or a Diminution or Deprivation of some Sense.

There is a celebrated Aphorism of *Hippocrates*, to this Purpose, *4 Aph. 49.* *In a continual Fever, says he, if the Lip, or Eyebrow, or Eye, or Nose, be distorted; if the Patient cannot see, or hear, and is at the same time very weak; whatever of these Signs appears, Death is near at Hand.* And this is expressed more clearly, *Lib. Prognost.* where it is said, *If the Eye-lid, or Lip, or Nose, be distorted, or corrugated, or livid, or pale, attended with some other Sign, you are to know, that Death approaches.* Distortions of the Eyes, therefore, are always a bad Sign, unless they happen critically, as was said: They are not, however, necessarily mortal, which the divine *Hippocrates* seems to have well understood, *6 Epid. Sect. 1. Aph. 16.* where he says, *A Circumtension (or Tension of the Circumference) of the Eye-lid is bad.* But a certain Judgment may be made from preceding, concomitant, and much better from succeeding Signs. Perversions or Distortions of the Eyes are, also, bad, when they happen while the lower and weaker Parts are oppressed by the Force of the Disease, because it indicates a Translation of the Humours to the Brain, and nobler Parts; which seems to be the Sentiment of the Author of the *1 Prorrh. 69.* when he says, that "A Distortion of the Eye, which is owing to a Recourse of the Humours from the Loins, is a bad Sign." But such Distortions, accompanied with other bad Signs, may be pronounced mortal: To which Purpose we read in the same Book, *Text. 81.* that "In burning Fevers, accompanied with superficial and general Refrigerations, and frequent watry and bilious Stools, a Distortion of the Eye is a bad Sign; and the worse, if the Patient labours, also, under a Catochus." He might more justly have called it a mortal Sign; for general Refrigerations in burning Fevers, accompanied with Evacuations, by which the Patient is not at all relieved, but rather injured, are critical Signs, which determine nothing, and consequently mortal, according to *Hippocrates* and *Galen*, who frequently tell us, that if the Patient finds no Relief from such things as might with Reason be expected to afford it, but is rather injured by them, and reduced to a worse State than before, nothing but Death can be the Consequence; for such Symptoms are to be esteemed critical Signs, which prove abortive, and answer no End, and are, of Consequence, mortal: Whence, if Distortions of the Eyes are accompanied with these bad Symptoms before-mentioned, it is not enough to call it a bad, but a fatal and destructive Sign. To this Purpose the Author of the *Prorrh. Lib. 1. Text. 89.* tells us, that "In a Distortion of the Eyes, accompanied with a Fever and Lassitude, a Rigor is pernicious; and a Coma, attended with the same Circumstances, is bad." Distortions of the Eyes, therefore, attended with bad Signs, and especially bad critical Signs, are justly esteemed mortal; but, if accompanied with mortal Signs, they signify the near Approach of Death. Of this Nature was the distorted Eye, observed by *Hippocrates*, in a Woman who died of an Abortion, *3 Epid. Sect. 1. Aeg. 11.* On the fourth Day, he says, *she was taken with a Delirium, attended with Fear and Sadness; her Right Eye was distorted; she had somewhat of a cold Sweat about her Head, and her Extre-*

*mities were cold.* These Circumstances, in acute Diseases, are mortal Signs.

To examine, next, what are the bad Prognostics which may be drawn from a Closure, or Shutting of the Eyes: When the Eyes, in acute Disorders, continue closed, and cannot be open'd, either from the Redundance of the Humours, pulling together and conglutinating the Muscles of the Eyes and Eye-lids, or from a Dryness and Resolution of those Muscles, through Imbecillity, in acute Disorders, it is always a mortal Sign: And, if at any time it be not so, it is when it is critical, and followed by some good and remarkable Evacuations; otherwise it portends nothing but Death. To this Purpose the Author of the *Coac. 77.* very finely expresses himself, where he says, that *They who lie speechless under a continual Fever, with their Eyes closed, and now-and-then twinkling, if they happen to be seized with an Eruption of Blood from the Nose, and Vomiting, succeeded by a Restoration of their Speech and Senses, recover their Health; but, if no such thing happens, they fall into a Dyspnoea, and die in a short time.* But it seldom happens, that a Closure of the Eyes is critically attended with the forementioned Symptoms, and never but in very robust Bodies; and therefore it is, for the most part, a mortal Sign. A Closure of the Eyes, accompanied with other bad Signs, is always fatal, agreeable to *1 Prorrh. 71.* above-quoted. Here the Physician is advised, as some understand the Passage, to prescribe nothing to his Patient, but attend the Event of the Prognostic; for such a Closure of the Eyes, as *Galen* says, in his Comment on the Place, proceeds either from a Tension of the Muscles which close the Eyes, or the Imbecillity of those which open them; both which are pernicious Symptoms.

To lie with the Eye-lids half-closed, in acute Distempers, is a bad and most fatal Prognostic. Of these speaks *Hippocrates, Lib. Prognost.* where he says, *We ought to consider whether the Patient lies with his Eyes half-closed in Sleep; for if any Part of the White appears between the unclosed Eye-lids, without a preceding Flux of the Belly, or Cathartic administer'd, and the Patient is not wont to sleep in that manner, it is an highly pernicious and mortal Sign.* This Sign, says *Prosper Alpinus*, I observed in my dearest Wife, before she died; and it proved fatal, though sometimes she used to sleep in that manner; but now it was attended with a Coma, Coldness of the Extremities, Restlessness, with Roughness and Blackness of the Tongue, unattended with Thirst: This Symptom therefore, in acute Distempers, is always to be dreaded, according to the Author of *Coac. 218.* where he says, that *An Incurvation of the Margin of the Eye-lids, with a Fixeness, or continual Twinkling, of the Eyes, or a Change in their Colour, or the Eye-lids not closed, is a pernicious Sign.*

The Colour of the Eyes is, also, to be regarded, in forming Prognostics of a bad Event: Thus, for the White of the Eye to appear red, unless it critically indicates an Hæmorrhage, is pernicious; but, when it is far from being critical, such a Symptom, in acute Diseases, is constantly bad. This Circumstance, also, is reckoned by *Hippocrates, Lib. Prognost.* among pernicious Signs, because, as *Galen* says in his Commentary, it proceeds either from a Redundance of Blood stagnating in the Brain, and its Membranes, or a considerable Inflammation in those Parts, both which, in continual Fevers, are constantly pernicious; and not the less so, if this Redness appears attended with other bad Signs, on critical Days, or after what manner soever, but worst of all in high Phrensies. Of this Symptom, among others, the Author of the *Coac. 163.* thus speaks: *Concessions, or Shakings, of the Head, with intense Redness of the Eyes, and a manifest Deliriousness, are pernicious.* That this Redness is a bad Sign, and to be dreaded, we are taught *7 Aph. 3.* because, says *Galen* on the Place, a Redness of the Eyes indicates a considerable Inflammation of the Brain, or Stomach, both which are destructive, as the same Author teaches expressly, in his Comment on *1 Prorrh.* where he says, that *A Redness of the Eyes, coming on a continual Fever, shews either a Redundance of Blood in the Head, which is the Cause of this Redness, as in Lippitudes, or from an Inflammation of the Brain, or Stomach; which are distinguished, in that, under the former, the Veins only in the White of the Eye appear red, whereas an Inflammation of the Stomach is attended, also, with Hiccups, or Vomiting.* Hence *Hippocrates, Lib. Prognost.* did not say simply, that a Redness of the Eyes, but of the Veins in the Whites of the Eyes, was of fatal Signification.

But the most pernicious and mortal Sign, according to the above-cited Place of *Hippocrates*, is when these Veins appear livid, or black; for, as *Galen* on the Place has it, this Lividness, or Blackness, proceeds from Refrigeration, which indicates an Extinction of the natural Heat.

In the last Place, the bad Fate of the Patient may be predicted from the Excrements which appear in the Eyes. *Hippocrates, Lib. Prognost.* and *1 Epid. Sect. 2.* among other fatal Signs belonging to the Eyes, in acute Diseases, reckons involuntary Tears. The Cause of such Tears *Galen* refers either to some Lippitude, or to a Defluxion from the Head upon the Eyes; but, in acute Fevers, it must be imputed to the Imbecillity of the retentive Faculty, which is of most fatal Consequence. Involuntary Tears, therefore,



therefore, in acute Diseases, where they are not a Sign of a future Crisis, by an Hæmorrhage, especially from the Nose, portend inevitable Death, according to *Hippocrates*, 1 *Epid. Sect. 2.* Puerile Excrements in the Eyes are, also, reckon'd, *Lib. Prognost.* among bad Signs. *Galen*, in his Comment, tells us, that though this Humour, or Excrement, proceeds from a Defluxion, as is sometimes the Case in a Lippitude, yet in acute Diseases it indicates an Imbecillity of the natural Faculty, which is too weak to concoct the Aliment necessary for the Eye. Sometimes there appears a sort of hard and dry Excrement, which the Author of the 1 *Prorrhæ.* 17. pronounces a Sign of a Phrensy; and *Galen*, in his Comments, writes, is sometimes observed in Persons under a Consumption, when all the fleshy Substance both in the Face, and on the Temples, is colligated by an immoderate Heat, which Circumstances are attended with an Hollowness of the Eyes; but, in a Phrensy, this dry and dusty Excrement appears without this Hollowness. Hence *Hippocrates*, 6 *Epid. Sect. 1. Text. 16.* among other bad Signs of the Eyes, reckons a sort of Excrement like Chaff, or dried Spume, which, as *Galen* says, happens in acute Diseases, from an extraordinary Driness and Imbecillity, very small Tears falling from the Eyes, which, thro' the Imbecillity of the retentive Faculty, were unable to retain them; and these minute Drops, or Tears, being dried by the intense Heat of an inflamed Brain, are changed into those dusty Sorts of Excrements, which the *Greeks* call *Lemæ*, and are for the forementioned Reasons accounted mortal Signs. *Prosper Alpinus de Præfag. Vit. & Mort.*

TABLE XIX.

*Fig. 1.* A, the Cilia, or Eye-lashes, of the superior Eye-lid.  
B, the Cartilage of the superior Eye-lid.  
C, the Musculus Attollens, or Aperiens Palpebræ Superioris, or Muscle that elevates the superior Eye-lid.  
D, in *Fig. 2.* exhibits the Musculus Superbus, or Elevator Oculi.  
E, the Tendon of the preceding Muscle.  
F, in *Fig. 4.* represents the Depressor Oculi, or Musculus Humilis.  
G, in *Fig. 1. 2. and 3.* represents the Adductor Oculi, otherwise called *Bibitarius*.  
H, in *Fig. 3. and 4.* represents the Abductor, or Musculus Indignatorius.  
I, in *Fig. 1. 2. and 3.* the Obliquus Superior, or Trochlearis.  
K, in *Fig. 4.* the Obliquus Inferior.  
L, in *Fig. 1. 2. and 3.* the Tendon of the Obliquus Superior passing over the Trochlea.  
M, in *Fig. 1. 2. 3. and 4.* the Optic Nerve.  
N, in *Fig. 3.* the Optic Nerve in its Progress to the Globe of the Eye.  
O, in *Fig. 1.* the Union of the Optic Nerves.  
P, in *Fig. 2. 3. and 4.* the transparent Part of the Cornea.

*Fig. 5.* A, the Tunica Sclerotica.  
B, that Part which is covered by the Tunica Adnata, or Albuginea.  
C, the transparent Part of the Cornea.

*Fig. 6.* represents a posterior View of the Eye, where the Tunica Sclerotica is removed in four Segments A A A A, in order to shew the subjacent Uvea furnished with innumerable Vessels.

*Fig. 7.* exhibits the same posterior View of the Eye, in order to shew the Retina, being an Expansion of the Optic Nerve.

*Fig. 8.* exhibits a View of the Eye, wherein all the Tunics are removed, in order to shew the Vitreous Humour, inclosed in its proper Membrane.

*Fig. 9.* represents the Vitreous Humour A A A A, in the Midst of which is placed the Crystalline Humour B.  
This is an anterior View of the Eye.

*Fig. 10.* represents the Pupil of the Eye, with the Crystalline Humour, and Ciliary Ligaments.

*Fig. 11.* represents the three Rugæ of the Processus Ciliaries, as viewed through a Microscope: That in the Middle is venous, and the other two arterial. The other Rugæ are neglected, and removed as much as possible.

A exhibits the expanded Portion of the Tunica Uvea, and Choroidæ, viewed in its interior Part through a Microscope, together with the three Striæ of the Processus Ciliaries.

B B represent two *Chori*, as *Hovius* calls them, of the Processus Ciliaries, consisting of arterial Vessels only, together with their Vermiculations; other Substances being removed, that the Order of the Vessels may appear the more distinctly.

C C, some vermicular small Vessels, ascending from the inferior Part to the Processus Ciliaries.

D D, the Union of the Vessels ascending from the inferior Part.

E E, the vermicular small Vessels, both long and short, together with the nerveo-lymphatic Ducts.

F F, the same Vessels, but arising from the Circulus Arteriosus, together with their Nerveo-lymphatics.

G represents the reflux, small, nerveo-lymphatic Vessels, together with the venous small Vessels.

H, the vermicular small Vessels, mark'd as well as the arterial ones.

I, the venous Vessel, formed of the vermicular small Vessels, which, when it has arrived at the End of the Processus Ciliaries, is carried almost in a straight Course to the Circulus Venosus.

*Fig. 12.* represents to the Life one Stria of the Processus Ciliaries, consisting of arterial Vessels alone, together with the Nerveo-lymphatics, delineated by the Assistance of a good Microscope.

A, some of the small arterial Vessels, arising from the inferior Parts, and laid somewhat to one Side, that the Excursion of the vermicular Vessels may be exposed to the naked View.

B, the Vessels joined in one, and ascending.

C C represent the short, vermicular, arterial Vessels, sent off before the uniting of the Vessels.

D, the same Vessels, but somewhat longer.

E, the Ramification of the vermicular Vessels arising from the Circulus Arteriosus: Some of these Vessels are turned back, as may be seen at F.

G G G, represent the short lateral or nerveo-lymphatic Vessels, sent off from the vermicular Vessels, and divided from the Ligamentum Ciliare.

*Fig. 13.* represents a small Ramification, view'd by a Microscope, and consisting of the vermicular Vessels, of which, together with the Nerveo-lymphatics, the Circulus Arteriosus furnishes a large Number.

A, a Part of the Branch arising from the Circulus Arteriosus cut off.

B, the vermicular Vessels, arising from the said small Branch.

C C, the nerveo-lymphatic small Vessels, reaching to the Ligamenta Ciliaria.

*Fig. 14.* represents the Ciliary Processes of a Dog, covered with two Coats. The former of these Coats represents, as viewed through a Microscope, the vermicular Vessels, together with the Nerveo-lymphatics dispersed through the Second, which is the fifth in Order, united, and torn from the Ligamentum Ciliare.

A, a small Part of the Circulus Arteriosus.

B B represent two Branches coming from the Circulus Arteriosus, one of which was cut off, whilst three other Branches, in order to prevent Confusion, were preserved, together with their vermicular Excursion, and a Distribution of the nerveo-lymphatic Vessels, through the nerveo-lymphatic Coat; as is shewed at C C.

D D exhibit the nerveo-lymphatic Vessels united in this Coat, representing, as it were, small Papillæ, and taken from the Ligamentum Ciliare, which they compose.

*Fig. 15.* represents a nerveo-lymphatic Vessel composed of several others, ascending to the Ligamentum Ciliare, and resolving itself into the said Number of Vessels, when it has reached that Ligament.

Observe, that, in order to prevent Confusion, all the small Vessels are not marked.

A A A, the Union of the nerveo-lymphatic Vessels into larger Vessels.

B B, the larger Vessels, formed of smaller ones.

C, Branches cut off.

D, the Vessels united, and ascending to the Ligamentum Ciliare.

E, the Resolution of this Vessel into small Branches.

*Fig. 16.* represents the Tunica Choroidæ inverted, in which the Vessels made up of the smallest Nerveo-lymphatics; filled with a redish Matter, resembling the Vitreous Humour, are torn off, and exhibit Papillæ twice as large as in the natural State; but, for preventing Confusion, far fewer in Number.

A, the nerveo-lymphatic Vessels sparkling, as it were, through the Tunica Papillosa, and forming the above-mentioned small Papillæ, or, rather, the small Vessels for containing the Vitreous Humour.

B represents these Vessels, formed of many others, as broken, and resembling small Papillæ.

C, the Part where the Optic Nerve has been cut off.

D, a Part of the Artery which was distributed through the Optic Nerve.

*Fig. 17.* represents the nerveo-lymphatic Vessels of a Dog, dispersed through the lymphatic Coat, viewed through common Spectacles, and larger than in the natural State, together with some small Papillæ, or Vessels, going to the Vitreous Humour, and left in the smallest Portion of the Tunica Papillosa.



A A are nerveo-lymphatic Vessels running out through their proper Coat.

B, some Papillulae, or small Vessels appropriated to the Vitreous Humour.

C, a small Portion of the remaining Tunica Papillosa.

Fig. 18. is the arterial small Vessel of an Ox, viewed through a Microscope, and which is sent to the internal Parts, from those between the second and third Coats expanded, that, together with the vermicular Progreſs, the nerveo-lymphatic Vessels, in some measure destroy'd, might also be seen, by laying the other Parts aside.

A is a small arterial Branch running off to the vermicular Vessels from these between the second and third Coat.

B represents the vermicular Vessels variously subdivided, and by Expansion somewhat removed from their vermicular Course, that their nerveo-lymphatic Vessels, represented by C, might be the more distinctly observ'd.

Fig. 19. exhibits the two Humours of the Eye. In this Figure, besides the true Situation of the Ligamentum Ciliare, and some small Mouths of the Vessels composing the Vitreous Humour, is also exhibited the small Vessel, which serves to nourish the Tunica Arachnoidea.

A A, the Ligamentum Ciliare.

B B are the nerveo-lymphatic Vessels broken off from the vermicular Vessels of the Processus Ciliares.

C C, a Collection of these Vessels into Striae wreathed up like Cords.

D, the nerveo-lymphatic Vessels contorted, and running off to the Crystalline Humour.

E E, some Mouths of Vessels which compose the Vitreous Humour.

F is a Ramification of the Vessel dispers'd thro' the Tunica Vitrea, and a Distribution of that which serves for its Nourishment.

OCYMASTRUM. A Name for the Circæa; Luteana; and, also, for several Species of *Lychnis*.

OCYMOIDES. A Name in *Boerhaave* for several sorts of *Lychnis*.

OCYMUM.

The Characters are;

The Root is annual in all the Species, except that of *Ceylon*. The Galea, or Crest, is erect, roundish, crenated, quadrid, and larger than the Beard, which is simple, hollow, long, horizontal, and crisped, or slightly jagged. The Calyx is tubulous, open, quadrid, and defective in a fifth Part; but has that Defect supply'd, instead of a Segment, with a small Leaf, which covers it like a Buckler, and is eared on the hinder Part.

*Boerhaave* mentions twenty-four Species of *Ocymum*; which are,

1. *Ocymum*; caryophyllum; monachorum; five Acinos; Columnæ. *J. B.* 3. 260. *Acinos Dioſcoridis*. Col. Phytob. 1. 23.

2. *Ocymum*; foliorum fimbriis ad Endiviam accedentibus; maximum.

3. *Ocymum*; latifolium; maculatum, vel crispum. *C. B. P.* 225. *Basilicum, Indicum, maculatum*. H. Eyst. *Æt.* 7. Fig. 1.

4. *Ocymum*; viride; foliis bullatis. *C. B. P.* 225.

5. *Ocymum*; foliis fimbriatis, viridibus. *C. B. P.* 225.

6. *Ocymum*; Caryophyllum, maximum. *C. B. P.* 225.

7. *Ocymum*; Caryophyllum; majus. *C. B. P.* 226.

8. *Ocymum*; Citri odore. *C. B. P.* 226.

9. *Ocymum*; Amli odore. *C. B. P.* 226.

10. *Ocymum*; Melilic odore.

11. *Ocymum*; Styriacis liquide odore.

12. *Ocymum*; Fœniculi odore.

13. *Ocymum*; nigrum; latifolium; laciniatum; spica nigrâ; flore albo, odore Cinnamomi.

14. *Ocymum*; vulgatus; see *BASILICUM*.

15. *Ocymum*; vulgatus; foliis ex nigro vireſcentibus; flore albo.

16. *Ocymum*; vulgatus; foliis ex nigro vireſcentibus; flore violaceo.

17. *Ocymum*; medium; crispum; conglomeratâ brevique spica.

18. *Ocymum*; minus; angustifolium; foliis ferratis.

19. *Ocymum*; minus; angustifolium; foliis bullatis.

20. *Ocymum*; tricolor.

21. *Ocymum*; minimum. *C. B. P.* 226. *J. B.* 3. 247. *Raii Hist.* 1. 541. *Tourne. Inst.* 204. *Boerb. Ind.* 170. *Ocymum Caryophyllum*. Oſſic. *Ocymum vulgare minus*. Park. Theat. 18. *Ocymum minus Caryophyllum*. Ger. 547. Emac. 673. *BUSHBASIL*.

It is cultivated in Gardens, flowers in *June*, and the Seed is in Use.

22. *Ocymum*; minimum; foliis ex purpurâ nigricantibus. *M. H.* 3. 407.

23. *Ocymum*; minus; Chinenſe; odoratiſſimum; flore albo. *Triumfett.*

24. *Ocymum*; Zeylanicum, perenne; frutescens; folio Calaminthæ nonnihil simili. *M. H.* 10. 153. *Nepetæ seu Menthæ Cataria affinis Indica, candido flore*. *Boerb. Ind. alt. Plant.* Vol. 1.

The Name *Ocymum* is from *ὠκύως*, *Oceos*, swiftly, quickly, from its sudden Growth; for it shoots forth from its Seed within the Space of two Days: It is also called *Basilicum* from *Βασίλειος*, *Basilus*, a King, because of its incomparable Smell, and eminent Virtues.

Many say, that, if the Smell be received up the Nostrils, there ascend Seeds or Eggs of Insects into the frontal Sinus, which are there cherished by the Mucus, and hatched; and this is not so much to be wonder'd at, since Insects are sometimes excreted with the Mucus.

This Herb is endur'd with a balsamic Virtue, and a most sweet and penetrating Smell; it is heating, and wonderfully reviving to the Spirits. An Addition of some Leaves of *Ocymum*, in a Preparation of *Sal Volatile*, gives it a much finer and more refreshing Smell. What gave Occasion to say, that much Smelling to the Leaves of *Ocymum* generates Scorpions in the Brain, might be, perhaps, that Scorpions, being allured by the Smell, lay their Eggs in the Leaves; which, being atracted through the Nostrils into the frontal Sinus, are there easily hatched, and afterwards increase. *Ocymum* is good to provoke Urine, and for an Obstruction of the Menſes, for the Colic, Asthma, and venomous Bites: It is a Plant of a balsamic and temperate Quality, and not offensive to the Smell, like Sage and Clary. *Hist. Plant. adscript. Boerhaave.*

OCYMUM SYLVESTRE. See ACINOS.

ODALLAM. H. M. A Name for the *Mangas fructu venenato*.

ODAXISMOS, *ὀδᾶξιμος*, from *ὀδῶς*, a Tooth. A biting Sensation, Pain, or Itching. It is us'd by *Hippocrates* principally with respect to the Gums, when the Teeth are forcing a Passage thro' them.

ODIUM. Hatred. This is reckon'd among the Procatartick Causes of Diseases; and seems to produce Effects like those of Anger. See IRA.

ODMALEA, *ὀδμαλία*. Fetids. *Hippocrates*.

ODONTAGOGOS, *ὀδονταγωγός*. An Instrument for drawing Teeth.

ODONTAGRA signifies either the same as *Odontagogs*; or the Gout in the Teeth.

ODONTALGIA, *ὀδονταλγία*. The Tooth-ach, from *ὀδῶς*, a Tooth, and *ἄλγος*, Pain.

ODONTIASIS, *ὀδοντίασις*. Dentition.

ODONTICA. Remedies for Pains in the Teeth.

ODONTIS, and ODONTITIS, are Names for several Species of *Lychnis*.

ODONTOGLYPHON, *ὀδοντόγλυφον*, from *ὀδῶς*, a Tooth, and *γλύφω*, to scrape. An Instrument for rubbing, or scaling the Teeth.

ODONTOIDES, *ὀδοντοειδής*. A Name for the Tooth-like Process, or the second Vertebra of the Neck.

ODONTOPHYIA, *ὀδοντοφυΐα*, from *ὀδῶς*, a Tooth, and *φύω*, to grow Dentition.

ODONTOTRIMMA, *ὀδοντότρυμμα*, from *ὀδῶς*, a Tooth, and *τρίβω*, to wear away. A Dentifrice.

ODORATUS. The Sense of Smell. See OLFACUS.

OE. *ὄν*. The Sorbus, Service-tree. *Oribasius, Med. Collect.* L. 15. C. 1.

OECONOMIA, *οἰκονομία*, from *οἶκος*, an House, and *νόμος*, a Law, or Rule. Properly, the Management of an House, or Family. But *Hippocrates* uses it to express the Management of a sick Person. The Animal Oeconomy is the Conduct of Nature in preserving Animal Bodies.

OEDEMA, *οἰδημα*. A Tumor in general. But it is particularly us'd to signify a phlegmatic, cold, and soft Tumor, retaining the Print of the Finger, but attended with little or no Pain. It is not confined to a particular Part of the Body; sometimes it seizes the Head, sometimes the Hands, sometimes the Eyelids, or any other Part, and sometimes the whole Body. In the last Case, it assumes the Name of a Cachexy, Leucophlegmatia, or Dropsy. This Disorder affects the Feet most frequently, which are then said to be tumefied, or oedematous.

The immediate Cause of an Oedema is doubtless to be ascribed to the too great Serosity or Viscidity of the Blood, which stagnates in the minute Vesicles of the Fat, or Tunica Cellulosa, and distends the Skin. This Disorder of the Blood proceeds either from a cold and phlegmatic Habit, or from old Age; and it happens most frequently in cold Weather, when the Inclemency of the Air increases the Disease, by coagulating the stagnating Blood. It is not, therefore, surprising, that the Tumor prodigiously increases, though it may seem favourable and much diminished in the Morning; which is certainly to be ascribed to the Warmth of the Bed. This Disorder may, also, proceed from an Irregularity in Diet, from Excess in Eating and Drinking, or from the Use of cold, crude, and hard Meats.



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Fevers, particularly those of the intermitting Kind, frequently conduce to this Disease; especially if the Patient has indulged himself in intemperate Drinking, while the Heat and Thirst are upon him. Another Cause may be a profuse Discharge of Blood either by Wounds, by Vomiting, or from the Nose, Lungs, Hæmorrhoids, or Uterus. It may, also, arise from Obstructions of the menstrual Discharge in Women, or from a Compression of the Vena Cava by the Fœtus, or a Scirrhus in the Abdomen, by which means the Reflux of the Blood from the lower Extremities is greatly impeded. It may likewise be ascribed to a Life too sedentary, or to too great an Indulgence of lying in Bed and sleeping; or to a Phthisis, and Difficulty of Breathing; or to any other Disease or Fatigue of the Body, which weakens the natural Vigour of the Heart in propelling the Blood.

Hence it may easily appear, by what Symptoms an Oedema may be known; but it is necessary to observe, that the harder the Tumor is, and the longer it retains the Print of the Finger, the stagnating Blood, or Humour, is the thicker, and more tenacious.

An Oedema upon the Feet can scarcely be cured without removing the Distemper whence it sprung. In pregnant Women, especially those of a robust Constitution, œdematous Tumors are attended with little or no Danger; for they generally disappear spontaneously after Delivery, the Vena Cava being then freed from its Compression. In weakly Women the Danger is greater, if they continue after Delivery; as they are frequently succeeded by a Dropsy, an Asthma, and even Suffocation. The longer the Duration is of these phlegmatic Tumors, the greater is the Danger, and the Cure more uncertain; but when they are recent, and attended with no other Disease, the Cure may be readily effected. Those, also, which follow an intermitting Fever, are milder than those which proceed from a too copious Discharge of Blood, or any other Weakness. If they proceed from the Obstruction of a natural Evacuation, they are best cured by removing that Obstruction. This Disorder of the Feet is easily remedied in young Persons, but in the Aged it is often incurable. When the Feet are violently tumefied, and Remedies, especially external Applications, have little Effect upon them, the Consequence is, generally, a Difficulty of Breathing, Suffocation, and, at last, Death.

The Cure of œdematous Tumors is different, according to the different Diseases whence they proceed; and therefore it is, in the first place, necessary to inquire into their Cause. When they appear to arise from an internal Disorder, recourse must not only be had to outward Applications, but principally to internal Medicines. With regard to external Applications, 1. Use frequent Frictions, with warm Cloths every Morning and Evening, till the Feet grow red, and glow with Heat. 2. In order to defend them from the Inclemency of the Air, especially in Winter, let the Legs be wrapt in Furs, or other thick Coverings; and at Night let warm Stones, or Pieces of Oak, be laid under the Feet in Bed, for attenuating the Blood. 3. Let a proper Bandage be applied, beginning with the Foot, and proceeding gradually to the Knee, which will greatly strengthen the relaxed Limb, prevent any Collections or Stagnations of the Blood, and the Skin from being distended by the inspissated Blood. 4. Digestive and strengthening Medicines should likewise be applied outwardly; thus let the affected Leg be plac'd over burning rectified Spirit of Wine, and so cover'd with Cloths, as to receive and retain the Vapour: By this Method the stagnating Blood will either be perspired in Sweat, or returned to the Circulation, and the relaxed Leg will be wonderfully strengthened. 5. A Remedy, often used by the Vulgar, is the greater Celandine, bruised and applied with Cloths to the Feet. Others use in the same manner Water-pepper, either alone, or mixed with Celandine, and not without Success; for they are both powerful Resolvents. Others apply the Scrapings of Horse-radish, or a warm Cataplasm of Dittander, boiled in Wine. An excellent Discutient, for this Purpose, is a Cataplasm of Pigeons Dung mixed with Salt and Vinegar, which must be often applied warm. Of equal Efficacy are the following Fomentations, a Lixivium prepared from the Ashes of Oak, and the Water in which Blacksmiths cool their hot Iron, which may likewise be mixed with some Ounces of Spirit of Wine, and a small Quantity of Alum, and applied warm with Compresses; or the Feet may be bathed twice a Day in this Liqueur. Lime-water applied in the same manner, either alone, or mixed with Spirit of Wine and Alum, is very beneficial in this Case; as is the following Mixture.

Take of Spirit of Wine, and Wine-vinegar, each a Pound; crude Alum, an Ounce and half; Vitriol, a Dram: Mix them together.

It is necessary to observe, that, after the Use of the Friction and Fomentations, the Leg must be carefully wrapped up with Bandages, and warm Stockings, or Coverings; and the Patient must not only be very moderate in eating and drinking, but must also use frequent Motion and Exercise, and never neglect

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proper internal Medicines, without which all the external Applications will nothing avail. Sometimes the mineral Waters are very efficacious in this Disorder, though they do not always succeed. Dr. Harris says, that he has frequently removed this Disease, by exhibiting the aperitive Crocus of Iron, mixed with the Peruvian Bark; others assert, that they have done it with the Bark alone, though some condemn these Remedies. It is, therefore, proper, in this Point, to take the Advice of a Physician. *Heister. Chirurg.*

**OEDEMOSARCA.** A Species of Tumor, mention'd by *Marcus Aurelius Severinus*, of a middle Nature betwixt an *Oedema* and *Sarcoma*.

**OELNIZIUM.** A Name for the *Thyffelinum*; *Plin.*

**OENANTHARIA**, *οἰνανθαρία*. Sweet-scented Ointments. *Paulus Ægineta* describes two of these, and informs us, that they are not called by this Name, because the *Oenanthe* enters their Composition; for many *Oenantharia* are without it; but because it is sweet-scented, and fragrant; or on account of the Wine and Lilies, which are Ingredients in it. *L. 7. C. 21.*

**OENANTHE.**

The Characters are;

The Root consists of great, long, carnos Tubera, resembling Spinules, the Petals of the Flower are unequal, and shaped like an Heart. The Apex of the Ovary is crowned with the Placenta, which shoots forth long Tubes, and is surrounded underneath by the upper Margin of the Ovary, which is expanded into five Pinnule, or small Lobes, supporting the Petals of the Flower like a Perianthium: These Pinnule stick to the ripe Seed like Prickles, and the Tubes themselves harden into Substances of the same Form.

*Boerhaave* mentions ten Species of *Oenanthe*; which are,

1. *Oenanthe*; *Chærophylli foliis*. *C. B. P. 162. Boerb. Ind. a. 51. Tourm. Inst. 313. Oenanthe Petroselinii folio venenosa. Offic. Oenanthe Cicuta facie Lobelii. Park. Theat. 894. Raii Hist. 1. 441. Synop. 3. 210. Oenanthe succo virolo, Cicuta facie Lobelii. J. B. P. 193. Filipendula Cicuta facie. Ger. 901. quoad descript. Emac. 1059. HEMLOCK, DROPWORT.*

It grows plentifully in Brooks, and in muddy and watery Places, in the Northern as well as Southern Parts of England.

It is an inexcusable Piece of Ignorance, says *Johnson* in *Gerard*, in those, who now in our Times sell the Roots of this Herb for Peony-roots; and he is very well assured, he says, that the Herb-women at London sell these Roots under the Name of *Levisticum Aquaticum*. But whether the Roots of this Plant be of a remarkably poisonous and malignant Quality, is doubted by some. *Matthioli* asserts his third Species of *Oenanthe*, and *Tabernaemontanus* his *Oenanthe Schænonbylos*, both which *C. Bauhine* makes to be synonymous with this Plant, to be wholesome and salutary Plants. For my Part, says *Ray*, I shall not determine the Matter, but leave it for farther Examination. *Raii H. P.*

2. *Oenanthe*; maxima; folio Apii; caulibus atropurpureis, flore albo.

3. *Oenanthe*; Apii folio; caule firmiore. *M. U. 16. M. H. 3. 288.*

4. *Oenanthe*; Staphylini foliis aliquatenus accedens. *J. B. 3. 2. 191.*

5. *Oenanthe*; Cretica. *Pon. Mont. Bald. Ital. 213.*

6. *Oenanthe*; aquatica. *C. B. P. 162. Raii Hist. 1. 441. Synop. 3. 210. Tourm. Inst. 313. Boerb. Ind. a. 51. Oenanthe palustris sive aquatica. Park. Theat. 895. Oenanthe sive Filipendula aquatica. J. B. 3. 191. Filipendula aquatica. Ger. Emac. 106. WATER-DROPWORT.*

It grows almost every-where in watery Meadows, and by the Side of Brooks.

This has a bitterish Taste, with somewhat of an Astringency; is of an hot and dry Nature, and has an opening and astringent Virtue. It provokes Urine, and expels Gravel, used either inwardly or outwardly; opens Obstructions, and cleanses the urinary Passages. *Raii H. P.*

7. *Oenanthe*; aquatica; minor. *Ind. 9.*

8. *Oenanthe*; Lusitanica; semine crassiore, globofo. *7. 313.*

9. *Oenanthe*; quod Bulbocastanum; folio leviter inciso; Lusitanicum.

10. *Oenanthe*; folio Apii rotundiori. *Boerb. Ind. alt. Plant. Vol. 1.*

The Plant takes its Name from *οἶνον*, *Oeno*, a Vine, and *ανθος*, *Anthos*, a Flower; so that *Oenanthe*, in English, is *Vine-flower*; for the Antients called some Plant, which was in Flower at the same time as the Vine, or whose Flowers had the same Smell as those of the Vine, *Oenanthe*.

It is of a very poisonous Quality, and, if tasted, causes immediate Death with Convulsions, as it happen'd at the *Hague*, where two Men went out an herbing, and, finding this Plant, tasted it: One of them was immediately taken with Convulsions, and dy'd on the Spot, the other soon after. Some such Instance we have in *Stalpert vander Wiel's* Observations, where Persons have dy'd within two Hours, after only tasting this Plant, which affects the Brain so as to cause Convulsions, and is so quick in Operation,



Operation, as scarce to give Time for a Remedy. The fifth is rarely to be met with; the third, fourth, sixth, and ninth, are said to be Resolvents, and very friendly to the human Body, tho' they are not in Use with us; the sixth and seventh are found in the Ditches about the Suburbs of this City [Leiden]. The Root has an acrid and unpleasant Taste; it yields at first a milky Juice, but afterwards a yellow, virulent, poisonous, and fetid one. The Plant, taken inwardly, immediately excites an extreme Pain in the Stomach, with such violent Convulsions, that the Jaws become immovable, and a frequent Hiccough succeeds, with fruitless Efforts to vomit, and a copious Hemorrhage from the Ears. The only Remedy in this Case is for the Patient to swallow great Quantities of Oil, Butter, or Milk, that the acrid Particles may first have their Points sheathed, and afterwards be evacuated by the upper or lower Passages. *Hist. Plant. adscript. Boerhaav.*

OENANTHE MYCONI A Name for the *Thalictrum*; minus; *grumosa radice*; *floribus majoribus*.

#### THE PREPARATION OF THE OENANTHINUM.

Gather the sweet-scented *Oenanthe* of the wild Vine; and, having suffer'd it to dry, put it into *Oleum Omphacinum*, (Oil made of unripe Olives) and carefully stir the same about; then let it rest for two Days, and afterwards strain it, and set it aside for Use.

The *Oenanthinum* has an astringent Virtue, correspondent to that of Oil of Roses; only wants its loosening and opening Quality. The best *Oenanthinum* is what smells most of the *Oenanthe*. *Dioscorides, Lib. 1. Cap. 56.*

#### THE PREPARATION OF THE VINUM OENANTHINUM.

Take of the dry'd Flowers of the wild Vine, gather'd in its flourishing State; two Pounds; and infuse them in ten Gallons of Must; let them macerate therein for thirty Days, after which strain off the Liquor, and set it aside for Use.

It is good for a weak Stomach, restores lost Appetite, and is serviceable in the Coeliac Passion and Dysentery. *Dioscorides, Lib. 5. Cap. 33.*

OENAREA, *ὀναρέν*. An Epithet of Ashes prepar'd of the Twigs, Tendrils, and Leaves of Vines.

OENAS, *ὀνάς*. A Species of Stock-dove.

OENELÆUM, *ὀνέλαιον*. A Mixture of Oil and Wine.

OENEROS, *ὀνέρος*. Vinous.

OENODES, *ὀνόδης*, from *δίνος*, Wine. Spirituous, or strong.

OENO GALA, *ὀνόγαλα*, from *δίνος*, and *γάλα*, Milk. A sort of Porion, made of Milk and Water. *Hippocrates*. Some interpret it, Wine as warm as new Milk.

OENOGARUM. The Name of a Composition for Sauces, mention'd by *Apicius, L. 1. C. 31.*

OENOMELI SANUM. The Name of a Composition, wherein Wine and Honey are Ingredients, describ'd by *Nicolaus Myrepsus, Sect. 37. C. 31.*

OENOPHLYGIA, *ὀνοφυλίη*, from *δίνος*, Wine, and *φλύω*, to be hot, or boil. Drunkenness. *Hippocrates*.

OENOPLIA. Offic. *Oenoplia spinosa* & *non spinosa*. Ger. Ennac. 1605. Rati Hist. 2. 1534. C. B. P. 477. *Oenoplia spinosa* & *non spinosa*, sive *Napeca*, sive *Zizyphus alba*. Park. Theat. 1441. *Oenoplia* sive *Nabea*, *Paliurus Africana*. Chab. 51. *Nabea folio Rhamni vel Jujube*. J. B. 1. 39. THE GREAT JUJUBE.

This Fruit, produc'd in Egypt and Crete, is of an astringent Quality, before it is ripe; for which Reason its Juice, either taken by the Mouth, or injected by way of Clyster, is frequently us'd in order to remove a Relaxation of the Stomach, or Intestines: According to *Veslingius*, they who allow their Patients Jujubes in putrid Fevers, indulge their Palate without doing them any manner of Service. According to *Prosser Alpinus*, the Juice of perfectly ripe Jujubes is an effectual Medicine for evacuating Bile from the Stomach.

Though Jujubes, especially when ripe, are highly grateful to the Taste; yet they nourish but little, and, if immoderately eaten, are like Cherries, easily subject to Corruption in the Stomach. They are, however, greatly esteem'd, and accounted a Delicacy by the Egyptian and Turkish Grandees.

*Alpinus*, whose Opinion is embraced by *Clusius*, thinks that the Tree which bears this Fruit is the *Cannarus* of *Athenæus*. But the Characters of the one do not agree with the other. In the Opinion of *Veslingius*, what *Theophrastus*, among other Egyptian Trees, has wrote concerning the *Coccytmelus*, and especially, that it bears a Fruit pretty much approaching to the Nature of a Medlar, seems to agree pretty well with this Tree. But *Pliny* calls this *Prunus Aegyptia*. Whether it is the *Lotus* of *Polybius*, mention'd by *Athenæus*, is what I shall not pretend to determine. *Ray Hist. Plant.*

OENOPUS, *ὀνόπος*, from *δίνος*, Wine, and *ὄψις*, an Aspect, is an Epithet for any thing resembling Wine. Thus,

*δινωπὸν χρώμα*, *Oenopon Chroma*, is a vinous Colour, or such as belongs to ripening Grapes, when from red they turn black and shining; for there is a sort of Propensity, as *Aristotle* says, in his Book of Colours, in maturing Fruits, to Blackness; and then they have vinous Juices; and, Chapter the fourth of the same Book, he says that the *δινωπὸν χρώμα* results from tempering pure Black with the resplendent Light of the Air. *Gazæ*, in *Theophrastus, Hist. Plant. Lib. 3. Cap. 16 & 17.* renders the Word by *fulvus*, a deep Yellow; and *Lib. 9. Cap. 13.* by *Ceruleus*, Sky-colour'd; and joins it with red. *ὀινωπε* *Boe Oenope Boe*, a Yoke of Wine-colour'd Oxen, in *Homer, Odysse. V.* are expounded by *πέρροι*, red, because, as *Eustathius* says, Wine is red; black ones are also called *οἰνωπε*, because Wine is black: And for the same Reason we find *Homer* often bestowing that Epithet on the Sea; and *Hesychius* expounds *οἰνωπε* by *μέλανα*, black, or as he says, *δινώδην τῇ χερίᾳ*, vinous in Colour. *Hippocrates, 7 Epid.* has *δινωπὰ χρώματα*, in his Description of a Dysentery, where he means by *i*, that the Stools were extraordinary red, and inclining to black; for he joins *δινωπὰ* with *ὑραιμα*, *hyphæma*, somewhat bloody. But, *Lib. περὶ γυναικ. φύσ.* and *Lib. 2. περὶ γυναικ.* by *δινωπαί*, and *δινωπὸν*, he means such Women as are of a Colour between white and black. *Calvus* renders the Word by *fusca*, brown. *Foesus.*

OENUS, *δίνος*, Wine, is the Juice of the Grape, after it has undergone Fermentation: This Liquor is of an heating and drying Quality, as *Hippocrates* says, *Lib. 2. περὶ διαίτης*, where he gives you the various Qualities and Differences of Wine, as he does, also, *Lib. περὶ παθῶν*, and *Lib. de Rat. Vi. in Morb. acut.* See a Translation of this last under our Article AL-CALI.

OENUS ANDRIUS, *δίνος ἀνδρείος*, is expounded by *Erosian*, either generous Wine, or Wine of the Island of *Andros*.

OENUS ANTHINOS, *δίνος ἀνθινός*, flowery Wine, is expounded by *Galen* in his *Exegesis*, to be either the same as the *Anthosmias*, or a Wine impregnated with Flowers; in which Sense he elsewhere gives the Epithet of *ἀνθινός* to the *Cycean*.

OENUS ANTHOSMIAS, *δίνος ἀνθοσμίας*, from *ἀνθίς*, a Flower, and *ὀσμή*, a Smell, is *Vinum odoratum*, sweet-scented Wine, such as has a very fragrant Smell, or smells of Flowers. That this was a factitious or artificial Wine, appears from *Athenæus* and *Suidas*. *Hippocrates, Lib. περὶ ἀφῶρων*, prescribes it in Suffumigations.

OENUS APODÆDUS, *δίνος ἀ. ἀπὸ δαίδος*, Wine, in which the *Dais* or *Tæda* has been boiled. See DAIS.

OENUS APEZESMENUS, *δίνος ἀπεζεσμένος*, a Wine heated to a great Degree, and prescribed among other Things, as Milk, Garlick, Salt, and Vinegar, by *Hippocrates, 6 Epid. Sect. 6. Aph. 7.* for the Correction of malignant Humours.

OENUS GALACTODES, *δίνος γαλακτώδης*, from *γάλα*, Milk, is Wine of the Warmth of Milk just taken from the Cow, or what has Milk mixed with it. *7 Epid.*

OENUS DEUTERUS, *δίνος δ. δευτέρος*, secondary Wine, or Wine of the second Pressing. *Hippoc. Lib. 2. de Morbis.*

OENUS DIACHEOMENUS, &c. *δίνος διαχεόμενος, & ἀποφυχόμενος, & διηθεμένος*, Wine diffused, or remov'd into larger Vessels, refrigerated, and strained, or racked off from the Lees, *Lib. περὶ παθῶν*, in order to render it the thinner and weaker. Wines, thus drawn off, are called *Saccata*, from *Saccus*, a Bag through which they were strained. Hence *Pliny* complains, *Lib. 19. Cap. 4. Vina inveterari, Saccisque lustrari*, "that Wines are depriv'd of their Strength and Vigour by passing them through Bags;" and, *Lib. 20. Cap. 7.* he says, that Aniseeds and bitter Almonds are put in the Bags to add Improvements to the Wine. That the thicker sort of Wines, such as the *Mastic*, or *Mastic*, were strained through a Linen Bag, we learn not only from *Lucretius*, *Horace*, and *Martial*, but from *Plutarch*, who, *Lib. 6. Sympot. Qu. 7.* treats expressly of it. *Scribonius Largus, Cap. 122.* mentioning *Falerium non saccatum*, means by it *Falerium* of the strongest, best sort, which has not been depriv'd of its Spirits by Saccation, or passing through a Bag.

OENUS ISUS ISO PINOMENOS, *δίνος ἴσος ἰσοπινόμενος*, Wine drank temper'd with an equal Portion of Water, was an usual Phrase with the Antients, and us'd by *Hippocrates, Aph. 56. Lib. 7.* to signify a moderate Temperature of these two Liquids. The same Mixture, *Lib. 2. de Morbis*, is expressed by *ἰσοκρατὴς δίνος*, *Oenus isocrates*, Wine of an equal Mixture, which is exhibited in Fevers.

OENUS CEDRINUS, *δίνος κέδρινος*, Cedar Wine, *Lib. περὶ γυναικ. φύσ.* and *Lib. 2. περὶ γυναικ.* This seems to be the same with CEDRITES; which see.

OENUS MALTHACUS, SIVE MALACUS, *δίνος μαλακός ἢ μαλακός*, soft Wine, in *Hippocrates*, sometimes signifies weak and thin Wine, as oppos'd to strong and generous; sometimes mild, in Opposition to rough and austere Wines.

OENUS MELICHRUS, *δίνος μελιχερός*, is sweet Wine, or Wine wherein Honey is dissolv'd.

OENOS OENODES, *δίνος οἰνόδης*, is strong generous Wine.

OENOS SIRAEOS, *δίνος σираεός*, is SARA. See DECOCTIO.

OENOS SYCITES, *δίνος συχίτης*, is Wine in which Figs have been macerated.



OENOS STAPHIDIOS LEUCOS, *δίνος σταφίδιος λευκός*. White Wine made from Raisins, or dry'd Grapes.

OENOS TETHALASMIENOS, *δίνος τεθαλασμίενος*. Wine where-with Sea-water is mix'd. *Hippocrates*.

OENOSTAGMA. Spirit of Wine.

OENOTHERA. A Name for the *LYSIMACHIA*.

OEPATA. H. M. P. 4. T. 5. *Arbor Indica fructu conoide, Cortice pulvinato Nucleum unicum, nullo assiculo tectum claudente*.

This is a tall and large Tree produc'd in sandy Soils on the Brinks of salt Waters, especially about *Cochin*. The Kernels of the Fruit are by the *Indians* us'd among a particular kind of Dish, by them call'd Caril; but their Bitterness must be previously remov'd by a long Maceration, and Boiling in Water. The Fruit of this Tree, also, when green, and boil'd with the Leaves of *Adamboe*, and a sufficient Quantity of Butter, makes an excellent Cataplasm, for softening and maturing Tumors, as, also, for maturing and discharging the Measles and Pox.

The Fruit of this Tree bears a great Resemblance to the *Anacardium*. *Raii Hist. Plant.*

OESOPHAGUS. The membranous Canal, which conveys the Aliment from the Mouth to the Stomach. As the *Pharynx* is the superior Part of this Duct, I shall first describe that.

The *Pharynx* is a muscular and glandular Bag, the outer Surface of which is closely join'd to the inner Surface of all that Space, which is at the Bottom of the Mouth, behind the posterior Nares, Uvula, and Larynx, and which reaches from the great or anterior Apophysis of the *Os Occipitis*, all the Way to the *Oesophagus*, which is the Continuation of the *Pharynx*. This Space is bounded posteriorly by the Muscles, which cover the Bodies of the first Vertebra of the Neck; and laterally by the superior Portions of both the internal Jugular Veins, and of both the internal Carotid Arteries; by the Spinal Apophyses of the *Os Sphenoides*; by the Extremities of the Apophyses *Petrosæ*; by the *Os Sphenoides*, immediately above the internal Wings of the Apophyses *Pterygoides*, and by the neighbouring Portion of both *Pterygoide* Muscles.

From these Limits and Adhesions of the *Pharynx*, we may pretty nearly determine its Figure. It may be compared to the wide Part of a covered Funnel, of which the *Oesophagus* is the narrow Part or Tube; or it may be call'd the broad End of the *Oesophagus*, that and the *Pharynx*, taken together, being compared to a Trumpet. The *Pharynx* may be divided into three Parts; one superior, which is the Arch of the *Pharynx*; one middle, which is the Body, or great Cavity; and one inferior, which is the Bottom, narrow Portion, or Sphincter. We are, also, to observe in it three Openings; that of the Arch, toward the Nares; that of the Body, toward the Mouth; and that of the Bottom, toward the *Oesophagus*.

The Arch is the broadest Part of the *Pharynx*, and ends on each Side in an Angle or Point, toward the Jugular Fossulae of the *Basis Cranii*. Afterwards the great Cavity contracts a little toward the Sides, all its other Dimensions continuing the same; and behind the Larynx it is again enlarged on each Side, a very small Space being left between it and the *Cricoid* Cartilage. The Extremity of the lower Portion is very narrow, and joins the *Basis* of the Cartilage just mention'd.

The *Pharynx* is made up partly of several distinct fleshy Portions, which are look'd upon as so many different Muscles, so disposed as to form a large Cavity; and partly of a Membrane, which lines the inner Surface of this whole Cavity, and is a Continuation of that of the Nares and Palate.

This Membrane is wholly glandular, and it is thicker on the superior and middle Portions of the *Pharynx*, than on the bottom or lower Portion. Immediately above the first Vertebra, it forms several longitudinal Rugae; very thick, deep, and short; and we generally find therein a Collection of Mucus in dead Bodies. In the great Cavity there are no Rugae, the Membrane adhering both there, and in the upper Part, very closely to the Muscles. At the lower Part, where it is thinnest, it covers likewise the posterior Part of the Larynx, and is very loose, and formed into irregular Folds. It runs in a little on each Side between the Edges of the *Pharynx*.

Though almost all the muscular or fleshy Portions, of which the *Pharynx* is compos'd, concur in the Formation of one continued Bag or Receptacle, they are nevertheless very distinguishable from each other, not only by their different Insertions, from which they have been denominat'd, but, also, by the different Directions of their Fibres. The greatest Part of them may be look'd upon as digastric Muscles, the middle Tendons of which lie backward in one longitudinal Line, which in some Subjects appears plainly like a *Linea alba*.

These Muscles may be reduced to three general Classes, with regard to their Insertions. The first Class is of these which are inserted in the *Basis Cranii*, as,

*Cephalo-pharyngæi.*

*Petro-pharyngæi.*

*Spheno-pharyngæi, five Spheno-salpingo-pharyngæi.*

*Pterygo-pharyngæi.*

*Stylo-pharyngæi.*

The second Class comprehends those which are inserted toward the Mouth; as,

*Peristaphylo-pharyngæi.*

*Glossopharyngæi.*

*Hypero-pharyngæi.*

*Genio-pharyngæi.*

The third Class includes those inserted in the lateral Parts of the Larynx; as,

*Synthesmo-pharyngæi.*

*Thyro-pharyngæi.*

*Crico-pharyngæi.*

*Oesophagus.*

*Adeno-pharyngæus.*

The *Cephalo-pharyngæi* are inserted in the lower Side of the Apophysis *Basilaris*, or great Apophysis of the *Os Occipitis*, about the Middle of the posterior Part. From thence they separate laterally, and sometimes they join the *Stylo-pharyngæi*. The *Linea Alba* of the *Pharynx* begins by the middle Adhesion of these Muscles.

The *Petro-pharyngæi* are inserted in the lower Part of the Extremity of the Apophysis *Petrosæ*; the *Spheno-pharyngæi*, partly in the *Os Sphenoides*, directly above the internal Ala of the Apophysis *Pterygoides*, and partly in the neighbouring cartilaginous Portion of the *Eustachian Tube*; and the *Pterygo-pharyngæi*, in the Edge of the same Ala of the Apophysis *Pterygoides*. These three Muscles, on each Side, run obliquely backward, covering each other by some Fibres, and meet at the *Linea Alba*. Their Use may be to draw the middle Portion, or great Cavity, of the *Pharynx*, upward.

The *Stylo-pharyngæi* are inserted interiorly by one Extremity in the Apophysis, or Epiphysis *Styloides*. From thence each Muscle runs down obliquely along the lateral Part of the *Pharynx*, covering and crossing the other Muscles. It extends gradually in Breadth, as it descends; and forms two principal Portions, one superior, which is narrow; and one inferior, which is broad. The narrow Portion is spread among the muscular Fibres above the *Thyroide* Cartilage, and the broad Portion is inserted in the Side of that Cartilage; and thus the *Stylo-pharyngæus* is partly a true *Stylo-thyroidæus*. These Muscles may draw the *Pharynx* laterally upward, especially by their *Thyroide* Portions; but the Use commonly assigned to them, of dilating the *Pharynx*, seems conformable neither to their Situation, nor to their Direction.

The *Peristaphylo-pharyngæi* are two small Muscles, inserted between the Uvula and lower Extremity of the internal Ala of the Apophysis *Pterygoides*, and run obliquely backward on the Sides of the *Pharynx*. It is difficult to find them in very lean or young Subjects, and they seem to be the same which *M. Santorini* calls *Hypero-pharyngæi*, or *Palato-pharyngæi*. The *Glossopharyngæi* are Fibres which run along the lateral Edges of the Tongue, from which they are parted backward, and run down on the Sides of the *Pharynx*, under the *Stylo-pharyngæi*.

The *Hyo-pharyngæi*, in general, are those on each Side, which are inserted in the *Os Hyoides*; and they may be reckoned three Pairs, the *Basio-pharyngæi*, *Kerato-pharyngæi* minores, and *Kerato-pharyngæi* majores; these Denominations being taken from their Insertions in the *Basis*, and in the small and great Cornua of the *Os Hyoides*.

I have never been able to see distinctly the *Mylo-pharyngæi* of *Dr. James Douglas*; all that I have hitherto found, is a muscular Portion really distinct from the *Genio-glossus*, inserted in the Side of the *Pharynx*; and for that Reason I call it *Genio-pharyngæus*, as being joined to the *Genio-glossus*, all the Way to the Chin.

The *Synthesmo-pharyngæi* of *Dr. Douglas* are Fasciculi of muscular Fibres very distinctly inserted by one End along the Ligaments, by which the superior Cornua of the *Cartilago Thyroides* are connected to the Extremities of the great Cornua of the *Os Hyoides*. From thence they run backward, and meet at the *Linea Alba*. To be able to see them distinct from the other Muscles, the *Pharynx* must be filled with Cotton, to give it a proper Convexity, and to support its Sides, which otherwise collapse, and sink inward, and thus prevent our seeing the Direction and Distinction of several of the Muscles belonging to it.

The *Thyro-pharyngæi* are very broad, and each Muscle is inserted along the Outside of the Ala of the *Cartilago Thyroides*, between the Edge of that Cartilage, and the oblique Line in which the *Thyro-hyoidæi* are fixed; and they are a little confounded with the *Crico-hyoidæi*. From thence they run up obliquely backward, and, meeting under the *Linea Alba*, they sometimes appear to be but one Muscle, without any middle Tendon. Sometimes they have appeared to me to be distinguished into Superior and Inferior, because their upper Portion ran upward and backward, and their lower Portion more transversely.

The *Crico-pharyngæi* are inserted each in the lower Part of the Side of the *Cricoid* Cartilage. They seem to be Appendices of the *Thyro-pharyngæi*, shewing no other Marks of Distinction, but these Insertions, and a small Difference in Direction, because, as they run backward, they descend a little. For this Reason I

have



have sometimes looked upon these two Muscles to be one, and have called it *Thyro-crico-pharyngæus*.

The lowest of these muscular Fibres make a complete Circle backward, between the two Sides of the Basis of the Cartilago Cricoides. This Circle is the Beginning of the Oesophagus, and has been thought by some to form a distinct Muscle, called *Oesophagæus*. I have found another Fasciculus of Fibres detach'd from the Thyro-pharyngæus, and inserted laterally in the Thyroide Gland; for which Reason I call it *Musculus Thyro-adenoidæus*.

The particular Uses of all these Muscles are very difficult to be determined. It is certain, that those of the middle and lower Portions of the Pharynx serve chiefly for Deglutition. Those of the upper Portion, and some of those of the middle Portion, may, among other Functions, be useful in modifying the Voice, according to the Opinion of M. *Santorini*.

The Oesophagus is a Canal partly muscular, and partly membranous, situated behind the Trachea Arteria, and before the Vertebrae of the Back, from near the Middle of the Neck, down to the lower Part of the Thorax; from whence it passes into the Abdomen, thro' a particular Hole of the small or inferior Muscle of the Diaphragm, and ends at the upper Orifice of the Stomach.

It is made up of several Coats, almost in the same manner as the Stomach, of which it is the Continuation. The first Coat, while in the Thorax, is formed only by the Duplicature of the posterior Part of the Mediastinum, and is wanting above the Thorax, and in the Neck, where the outer Coat of the Oesophagus is only a Continuation of the cellular Substance belonging to the neighbouring Parts.

The second Coat is muscular, being made up of several Strata of fleshy Fibres. The outermost are mostly longitudinal; but they are not all continued from one End of the Canal to the other. The following Strata are obliquely transverse; the next to these, more transverse; and the innermost are turned a little obliquely the contrary Way. They cross each other irregularly in many Places, but are neither spiral, nor annular.

The third is termed the nervous Coat, and is like that of the Stomach and Intestines. It is differently folded or plaited, according to its Length, being much wider than the muscular Coat; and it is surrounded by a whitish, soft, fine filamentary Substance, like a kind of Cotton, which, when steep'd in Water, swells and grows thicker.

The fourth, or innermost Coat resembles, in some measure, that of the Intestines, except that, instead of the Villi, it has small and very short Papillæ. It is folded lengthwise like the third Coat, so that the Oesophagus, when cut across, represents one Tube within another. Through the Pores of this Coat, a viscid Lymph is continually discharged.

The Oesophagus, from its very Beginning, turns a little to the Left Hand, and naturally runs along the Left Extremities of the Cartilages of the Aspera Arteria. *Winslow*.

#### *Disorders of the OESOPHAGUS.*

'Tho' Spasms of the Oesophagus are rarely mentioned in Medicinal Writings, yet they are so frequent, and not only the Symptoms of other violent Disorders, but, also, an idiopathic Disease, that they deserve a particular Consideration. Spasms of the Oesophagus may be defined, An involuntary and preternatural Constriction of the Oesophagus, or of its Beginning, called the Pharynx, or both, generally produced by an irritating Mucus.

Hence appears the Difference of these Spasms; for as the whole Oesophagus is, by Anatomists, divided into its Beginning, the Pharynx, and the rest of the Canal, so we find from Experience, that its Spasms differ with respect to Place, since they sometimes seize the Pharynx, and at other times its inferior and remaining Parts. To these may be added, a third Species of Disorder, in which the whole Canal, together with its Beginning, and the adjacent Parts, are violently convulsed.

All Spasms of the Oesophagus, in whatever Country they happen, have these Signs in common with other Distentions of the superior Parts. There are Refrigerations of the Extremities, and especially of the Feet; Tremors and Rigors of the Joints; Suppression of the Excrements by Stool; Regurgitations of Flatulencies to the superior Parts; Strictures of the lower Abdomen, accompany'd with Pains and Rumbings; Uneasiness of the Præcordia; Efforts to vomit; Cardialgias; thin, aqueous, and pale Urine; and an hard and large Pulse.

Spasms of the Pharynx alone discover themselves by these Signs. The Deglutition becomes difficult, and accompany'd with such Pain, that the Patient can sometimes neither swallow Solids, nor Fluids. There is a Constriction, Rigidity, retarded Motion and Pain of the Parts adhering to the Pharynx, of the Tongue, the Larynx, and whole Neck; a suffocative Uneasiness afflicts the Patient, and a Sensation, as it were, of a Stake fix'd in the Fauces; and as if something was creeping out of the Part. The Voice is lost, and these Symptoms afflict the Patient by Intervals, and frequently terminate in Convulsions of the whole nervous System.

The Signs peculiar to Spasms of the inferior Part of the Oesophagus are these: A certain Stopping of the Aliments freely

swallowed is perceived in the Gullet, especially about the superior Orifice of the Stomach; by cold Liquors these Parts seem to be more obstructed and constricted, whereas warm Liquors are often perceived freely to pass thro' the Oesophagus, and to enter the Stomach; a Pain is felt in the Spine of the Back, between the Scapulæ. To these Symptoms is often added a great Inclination to Vomit, which is sometimes accompany'd with an actual Vomiting. A Nausea, and an uneasy Explosion of Eructations, are, also, frequent in this Disorder; a limpid Mucus is, also, frequently discharged from the Mouth, and is to be distinguished from Vomiting. If these Symptoms concur with those enumerated in the preceding Paragraph, they shew that the whole Oesophagus is spasmodically contracted.

But since these Disorders may be easily confounded with other Diseases of the Oesophagus, by reason of the Similitude of Symptoms, we must explain their Differences. First, then, Spasms of the Pharynx are to be distinguished from a Palsy, or the Want of a due Tone in that Part; for, in the Want of a due Tone, there is a perpetual Difficulty of Deglutition, though Solids are more easily swallowed than Fluids (See *Forestus, Lib. 15. Observ. 30.*); for Fluids often slip into the Aspera Arteria, and regurgitate through the Mouth and Nostrils, in such a manner, as to endanger a Suffocation. In a perfect Palsy of the Pharynx, such as *Tulpius* mentions in *Lib. 1. Cap. 44.* Deglutition is totally destroy'd, so that the Patient is in Danger of dying of Hunger. The Face, also, and the adjacent Parts, are highly pale, soft, and flaccid. On the contrary, in Spasms of the Pharynx, the Difficulty of swallowing Solids and Fluids is equal, and remits at Intervals; the Vessels of the Face become tumid; the Countenance red; the Parts affected, rigid, and often painful.

Spasms of the Pharynx are easily distinguished from an Inflammation thereof, and of the Fauces in a Quinsy, in which the internal Fauces are swelled, red, scorched with an intense Heat, the Thirst is greater, and, for the most part, accompanied with a violent Fever. The Physician may, also, be imposed upon by a Tumor, an Excrescence, or a Piece of any thing sticking in the Pharynx, or a preternatural Conformation of the Larynx, so as to ascribe the Impediment of Deglutition, arising from these Circumstances, to Spasms. See *Forestus, Lib. 15. Observ. 28.* In this Case a Wax-candle, or the Instrument described by *Hildanus, in Cent. 1. Observ. 36.* thrust into the Fauces, will often discover the Truth. Besides, in Spasms of the Pharynx, all the Signs, taken together, will amount to a Certainty.

Besides, Spasms of the inferior Part of the Gullet agree with other Disorders of the Oesophagus, and a Stopping of the Aliments is a Symptom common to each; such as an Obstruction of the Gullet by a Piece of solid Aliments sticking in it; see *Hoffman. Consult. Med. Sect. 2. Cas. 63.* and *Forestus, Lib. 15. Observ. 28.* And Tumors, Excrescences, Funguses, and Warts arising in the Canal of the Oesophagus; see *A. N. C. Dec. 1. An. 4. Obs. 47. Decur. 2. An. 8. Obs. 96*; as, also, the dorsal Glands about the fifth Vertebra of the Back, adhering to the Oesophagus, and elevated with preternatural Pain, as *Verheyen, in Anat. Cap. 10.* and *Heister, in Compend. Anatom.* have observed. In these Cases solid Aliments stop, and are vomited up again, whereas Fluids, whether cold or hot, have a more or less easy Passage to the Stomach. But, if there is a spasmodic Constriction of the Oesophagus, 'tis observable, that warm Fluids descend more easily than such as are cold, there is a Pain of the Scapulæ, and other Signs concur, which by no means happen in an Obstruction of the Oesophagus, produced by any foreign and preternatural Substance.

But that the Causes, and mechanical Reasons, of these Symptoms may appear the more distinctly, we shall take a short View of the Structure of the Oesophagus. The Oesophagus, then, beginning at the last Part of the Fauces, has, at its Beginning, a large Cavity, called by the *Greeks, Pharynx*, and by the *Latins, Infundibulum*. Its anterior Part is connected with the Root of the Tongue, the Os Hyoides, and the Larynx; and its posterior Part closely adheres to the Vertebra of the Back. It is moved by various dilating Muscles, which elevate and dilate the Pharynx, and by other constrictory Muscles, which shut it. There is one Pair of these Muscles, which, arising by three Origins from the Os Hyoides, the Cartilago Cricoides, and the Cartilago Thyroides, totally surrounds the Pharynx, and is called the Sphincter of the Oesophagus. There are principally three Pairs of these Muscles; the first of which is called the Cephalo-pharyngæus, which, arising from the lowest Part of the Occiput, and the first Vertebra of the Neck, is expanded to the Coats of the Larynx. The second is called the Spheno-pharyngæus, which, arising from the Alary Processes of the Sphenoid Bone, runs to the Sides of the Pharynx; and the third is called the Stylo-pharyngæus, which, rising from the Styloid Apophysis of the Temporal Bones, is inserted in the Sides of the Pharynx.

At the End of the Pharynx begins the Oesophagus, which first of all runs strait between the Aspera Arteria, and the Vertebrae of the Neck and Back, but turns to the Right about the fifth Vertebra of the Back, and to the Left, about the ninth. Then, proceeding thro' the Middle of the Thorax, and the muscular Part of the Diaphragm, it is united with the superior Orifice of the Stomach.



**Stomach.** The Oesophagus, itself, consists of four Coats, the outermost of which, being membranaceous, thin, vascular, and cellular, derives its Origin from the Pleura, and joins the Gullet to the adjacent Parts. The Coat next to this is fleshy or muscular, furnished with annular, or orbicular Fibres, and, above these, with longitudinal Fibres. The third Coat is nervous, common to the Mouth and Fauces, and, reaching three Fingers-breadths within the Stomach, is thick-set with Glands, to which, on the opposite Side, are distributed some Vessels, from which they receive a certain Liquor more pinguous than the Saliva, and which drops into the Cavity of the Gullet. The fourth and innermost Coat is covered with a slippery Mucus, villous, and everywhere perforated like a Sieve, with many Emunctories. Besides, the Oesophagus is furnished with numberless Glands, partly those which, being smaller than the Eggs of Silk-worms, are lodg'd in the nervous Coat, and are easily perceived, if, upon taking off the nervous Coat, the fleshy Coat is exposed to the Sight, or the Gullet is macerated in Water; and partly with other Glands plac'd without the Oesophagus, among which the most considerable are, the Dorsal Glands about the fifth Vertebra of the Back, adhering to the Gullet, and the Thyroide Gland, situated between the Thyro-cricoid Cartilage, and the Oesophagus, see *Verellonius in Dissert. de Glandulis conglomeratis Oesophagi*. Nor is this Canal destitute of Vessels; for its superior Part receives Arteries from the internal Carotids, its middle Part from the Aorta, and intercostal Arteries; and its inferior Part from the gastric Arteries. Its superior Part receives Veins from the Jugular Veins, its middle Part from the *Vena sine Pari*, its inferior Part from the coronary Veins of the Stomach; and it receives nervous Vessels from the Par Vagum.

The Function of the Pharynx is Deglutition, the mechanical Account of which is as follows: Whilst the Bark of the Tongue is apply'd to the Palate, by means of the Mylo-glossus, the Stylo-glossus, and the Stylo-hyoidæus, the Root of the Tongue, the Os Hyoides, and the Larynx, are press'd forwards by the Muscles subservient to this Action. The posterior Part of the Pharynx is elevated by the Cephalo-pharyngæi Muscles, and its anterior Part dilated by the Stylo-pharyngæus, and the Spheno-pharyngæus.

By these Actions of these Parts, a larger Space, and a greater Cavity, are made before the Membrane surrounding the Vertebrae of the Neck and Pharynx under the Veil of the Palate, Uvula, and Tonsils, and above the Larynx and Pharynx. Then the Substances to be swallow'd are press'd between the Back of the Tongue, and Roof of the Palate; and, being thus press'd upon the Chink of the Larynx, which is shut by a cartilaginous Covering, or the Epiglottis, are propelled into the Cavity of the Fauces. Then the antagonist Muscles begin to act; for the Tongue being already elevated, and press'd forwards, the *Larynx* and *Os Hyoides* are restored to their former Figure; and especially the Cartilages of the Larynx, being extended to the Pharynx, press upon it; by which Action, the Substances to be swallowed are, when lodg'd in the Oesophagus, farther propel'd. These Substances, when the dilatatory Muscles of the Pharynx are relaxed, and the Oesophagus constricted, are more protruded; and, thus the Pharynx being again constricted, they are lodg'd in the Cavity of the Gullet, under the Pharynx.

Then this Action is succeeded by that of the Oesophagus, by means of the peristaltic Motion of which, performed by its muscular Coat, and tending downwards, the Aliments already swallowed, and lodged under the Sphincter of the Pharynx, are convey'd to the Stomach; for since this Coat, by its alternate Dilatation and Contraction, the former of which is performed by means of longitudinal Fibres, and the latter by annular Fibres, sometimes constricts, and sometimes dilates the Oesophagus, and since in Men its Situation is perpendicular, the Aliments taken are gradually press'd downwards. This Descent is render'd still more easy by the Mucus of the Glands, which continually drops into the Gullet, lubricates it, and assists in the Resolution of the Aliments. The Aliments being thus convey'd to the Stomach, the Flesh of the inferior Muscle of the Diaphragm constricts the Gullet, as it passes through it, and in that Part closes the Stomach.

From what has been said, 'tis easy to account for the Nature and Reasons of Spasms of the Oesophagus; for, first, if we consider the Pharynx, it is obvious from the Mechanism of Deglutition, that, when the Muscles of the Pharynx are constricted, it can hardly be performed; because, when the Organ is injured, the Action must of course be lost. Besides, when the dilatatory Muscles, situated in the posterior Part of the Infundibulum, are seized with Convulsions, and drawn more forwards into a conglobate Figure, there is a Sensation as if a Stake was fixed in the Fauces. But when the Muscles of the Oesophagus are constricted together with the adjacent Muscles of the Larynx, Tongue, and Os Hyoides, a Difficulty of Speech is produced, and a suffocative Uneasiness. But since all Spasms are sometimes violent, and sometimes mild, the Reason is, also, obvious, why Spasms of the Oesophagus are at certain Intervals augmented.

In like manner, when we suppose the Spasms of the inferior Part of the Gullet to arise from a violent Contraction of the longitudinal and

orbicular Fibres of the muscular Coat, which surrounds it, we can account for all the Symptoms which accompany that Disorder; for when there is a Constriction in any Part, either near the Pharynx, or Stomach, all the Aliments swallowed stop in that Canal, and, the peristaltic Motion being inverted, are again vomited up. If cold Liquors are drank, they increase the Spasm, and, like solid Substances are hindered in their Descent, whereas tepid Liquors, by soothing the spasmodically-constricted Fibres, pass freely into the Stomach. Besides, the Oesophagus is, by various Ligaments, connected with the Vertebrae of the Neck and Back. Hence, when the Oesophagus is constricted, the Pain must necessarily be propagated to the Membranes surrounding the Vertebrae of the Back. Hence we account for the Pain, which, in this Disorder, is perceived between the Scapulae; see *Forestus, Lib. 15. Obs. 31. Schol.* where he tells us, "That all Pains of the Oesophagus affect the Spina Dorsi, on which the Gullet reclines, and to which it adheres."

Whatever Causes, therefore, are capable of vellicating or stimulating the Muscles of the Pharynx, or the fleshy Coat of the Oesophagus, are called the immediate Causes of the Spasms. But as these Causes act either immediately on those Parts which constitute the Seat of the Disease, or on other more remote Parts, by Consent; so these Spasms are either idiopathic, or symptomatic. If, therefore, from the Larynx, the Stomach, Intestines, or any other Parts, primarily seized with Convulsions, the Spasms are propagated to the Pharynx and Oesophagus, the Disorder is called *Symptomatic*.

Among the Causes inducing idiopathic Spasms of the Oesophagus, the most considerable are, the Passions of the Mind, especially violent Anger, particularly after liberal Drinking. That by this means the Pharynx is seized with Convulsions, and consequently Deglutition injured, is certain from Experience. Nor is it less frequently to be observed, that the same Cause, especially after Eating, constricts the inferior Part of the Gullet, whilst the swallowed Substances remain in it, and are often thrown up again by Vomit.

Spasms, especially of the inferior Part of the Gullet, are powerfully excited by a Loathing, which can by no means happen without being attended with such Spasms. But if we consider the Effects of a Loathing more attentively, Observation will inform us, that, in such a State, first, the Idea of some ungrateful Substance in the Mind; secondly, an Aversion to this Substance, happens; thirdly, this Aversion is succeeded by an Impediment of Deglutition; fourthly, the Aliments stop in the Oesophagus, and a Sensation of Stricture is produced; fifthly, to these a Nausea is joined; sixthly, in this Case a Vomiting frequently happens; and, seventhly, sometimes a Delirium: So that a Loathing may be defined, The Idea of some ungrateful Substance, accompany'd with Spasms of the Oesophagus and Stomach.

Imagination alone frequently disposes to obstinate Spasms of the Oesophagus, accompany'd with remarkable Aversions. Thus, in *A. N. C. Centur. 7. Obs. 61.* we have an Account of a Woman in good Health, and of a robust Make, neither subject to hysteric nor spasmodic Disorders, who could eat and drink without Difficulty; but, when she attempted to take the Host, she had not only a great Aversion to it, but, also, threw it up by Vomit, before it reach'd her Stomach; tho' she had cram'd it down her Throat, and endeavour'd as much as she could to swallow it. In the same Work, *Dec. 3. An. 1. Obs. 79.* we have, also, an Instance of a Man, who, by an excessive Use of Tobacco, brought on an Impediment of Deglutition, which was sometimes greater, and sometimes less, according to the different Degrees of Force in his Imagination.

Medicines, acrid Substances, or Poisons taken, are capable of producing the same Effects, since, by vellicating the nervous and muscular Parts, they induce Strictures thereof. Thus *Hoechstetters*, in *Obs. Dec. 3.* makes mention of a Constriction of the Gullet, by drinking Malmsey-wine, in which the Roots of the greater Confound were infused. This happens so much the more readily, if the Substances taken are of a caustic Nature; so that it is not to be wondered at, if, according to the Observation of *Forestus, Lib. 15. Obs. 30.* a certain Boy, by drinking Aqua-fortis, was seized with such a Constriction of the Pharynx, as to endanger a Suffocation. But especially Sublimate Mercury, when taken, produces a violent Constriction of the Fauces. See *Forestus, Loc. citat.* Insects swallowed, by Vellicating, also, excite Spasms of the inferior Part of the Gullet. Thus *Rhazes, Lib. 9. ad Alhanaz. Cap. 56.* and *Rhodius, Obs. Cent. 2. Obs. 72.* affirm this concerning Leeches drank in Water. *Gesnerus, Lib. 2. de Hist. Animal. Cap. de Latert.* affirms, that the same Effect is produced by Lizards creeping into the Fauces. *Hennius de Morb. Cap. 7.* asserts, that the same Misfortune is produced by swallowing Lice. And *Platerus, in Lib. 2.* gives an Instance of the same Effect, produced by swallowing a live Eel.

Besides, Spasms both of the Pharynx, and inferior Part of the Gullet, may be produced by the Blood stagnating in these Parts, and distending the Vessels, which Distensions are always accompanied with Spasms. For this Reason hypochondriac Persons are frequently subject to this Disorder, since in them, by



the Force of the intestinal Spasms and Flatulencies, the Blood is forced to the superior Parts, and easily stagnates in the Oesophagus. This Disorder is, also, very readily produced by an universal Dyscrasy of the Humours, especially those of the serous Kind; when, for Instance, that lymphatic Liquor, secreted from the Glands into the Gullet, is viscid and acrid; in which Case a liberal Expectoration of the viscid Mucus affords great Relief: Of this kind seems to have been the Case mentioned by *Wepfer*, in *Observ. Medic. Pract. Observ.* 117. of a Man of seventy Years of Age, whose Aliments stuck, as it were, in the middle of his Gullet, where they afflicted him till they were again thrown up by Vomit.

Spasms of the Gullet may be produced by Disorders of the Stomach and Intestines, in consequence of the Consent between it and these Parts. Thus this Disorder is easily produced by acrid, acid, or bilious Sordes of the Stomach and Intestines. Accordingly *Forestus*, in *Lib. 18. Obs.* 13. affirms, That it may be produced by Milk concremented in the Stomach. *Hercules Saxoni*, in *Prælect. Pract. Part. Cap. 7. Sect. 4.* *Henricus ab Heer. Obs.* 16. and *Thonerus, Lib. 2. Obs.* observe, That Worms, lodged in the Stomach or Intestines, contribute to the Production of this Disorder. The Explosion of Eructations, and Vomiting, are also accompanied with Spasms of the Oesophagus; for, unless the Action and peristaltic Motion of the Oesophagus were inverted, and assisted the Ejection of the Humours out of the Stomach, it could by no means happen, that such a Quantity of Humours could, with such an Impetus and Quickness, be so often thrown up, not only from the Stomach, but, also, from the Intestines.

In consequence of the Consent of the Parts, Spasms of the Oesophagus are, also, frequently observed to accompany various spasmodic, and convulsive Disorders of the nervous System: Thus, in hysteric Suffocations, we find from Experience, that there is always a violent Constriction of the Neck and Fauces, and a Sensation resembling that produced by a Ligature stopping and compressing the Fauces. See *Ettmuller. Oper. Pract. P. 2. Cap. 3. Sect. 3.* and *Helmont*, in *Tract. de Asthmate & Tussi*. A Constriction of the Gullet, also, frequently happens to those who labour under convulsive Colics. And *Hofferus*, in *Hercule Medic.* gives us a memorable Instance of a Colic, which brought on a violent Cephalalgia, and Madness accompanied with Blindness, and a Difficulty of Deglutition. Epileptic and convulsive Paroxysms are, also, attended with this Symptom, since under them the Deglutition is either very difficult, or none at all, as is particularly observable in the Incubus, where, besides the Sense of Strangulation, there is an Inability of the Tongue, and an Impediment of Deglutition. The same Misfortune, also, frequently accompanies the Opisthotonos, as may be seen in the Cases related by *Forestus, Lib. 10. Obs.* 12. and 13. Nor are we to omit acute Disorders, especially malignant Fevers, in which there is not only a Difficulty of Deglutition, but, also, sometimes a Constriction of the inferior Part of the Gullet.

A Nausea is nothing but a gentle Convulsion of the Oesophagus, accompanied with an Inversion of its peristaltic Motion, and producing an Inclination to vomit, or Vomiting, or, at least, a Discharge of a more or less viscid Mucus from the Glands of the Gullet. It may be occasionally caused by every thing capable of vellicating either the Oesophagus itself, or its nervous Coat propagated to the Stomach, by which means this Constriction is, by Consent, propagated to the Gullet. We find in general, first, that a Nausea is the Forerunner of a subsequent Vomiting; secondly, that it accompanies all Inclinations to Vomits, and Cardialgias; thirdly, that without these it often happens with a frequent Discharge of a limpid Mucus, which is nothing but the Lymph of the Glands, expressed by the Force of the Spasms; this Disorder, also, frequently indicates, that Worms are lodged in the Primæ Viæ; fourthly, that it generally succeeds Crudities of the Stomach, which, as they are acrid when the Stomach is empty, they then, particularly excite a Nausea, which is to be alleviated by taking Aliments; fifthly, that it precedes violent Disorders of the Head, such as Vertigos, Apoplexies, and Deliquiums, especially when, by Consent, they derive their Origin from the Orifice of the Stomach, whence a certain Aura, or Vapour, seems to ascend from the Stomach to the Head; in which Case they are rendered, as it were, apoplectic, and deprived of the Exercise of their Senses; sixthly, for the same Reason, a Nausea afflicts those who labour under hypochondriac, or other Disorders, the Fomes of which is lodged in the Primæ Viæ; and, seventhly, in the Beginning of malignant Fevers a Nausea generally happens.

As for the Prognostic: Idiopathic Spasms of the Pharynx are never of good Presage, because, especially when preposterously treated, they prove very obstinate. Those Spasms of the Pharynx, which proceed from taking acrid Substances, are never free from Danger, and lay a Foundation for dreading an Inflammation. Those Spasms of the Oesophagus, which frequently seize hysteric Women, presage an Apoplexy. In Wounds, if

an Impediment of Deglutition happens from Convulsions, 'tis a bad Sign, according to *Ettmuller, Oper. Pract. Part. 1.* And *Hippocrates*, in *Sect. 4. Aph.* 35. tells us, That "if the Neck of a Patient labouring under a Fever is suddenly distorted, so that he can hardly swallow any thing, and without any Tumor, it is a mortal Sign." Spasms of the inferior Part of the Gullet, produced by Anger excited when at Meals, readily lay a Foundation for the Cholera Morbus, and bilious Fevers. And those Spasms of the Oesophagus, which depend upon an universal Dyscrasy of the Humours, and a Weakness of the nervous System, constitute a chronical Disease, succeeded by a Consumption. A Nausea, happening in the Beginning of malignant Disorders, is a Proof of the Strength of Nature; but is an highly pernicious Sign in a Plague, according to *Forestus*, in *Lib. 18. Obs.* 14. *Schol.*

#### THE CURE.

Since Spasms of the Oesophagus, whether in the Pharynx, or Middle of the Gullet, when neglected, not only become chronical, but, also, by hindering the Deglutition of the Aliments, readily bring on a Consumption, they, therefore, deserve to be expeditiously treated by proper and suitable Remedies: And these Remedies are of two kinds; the one calculated for allaying the Spasms, and the other for removing the Causes contributing to their Production.

The former of these Intentions is obtained by Antispasmodics and Anodynes, joined with Discutients, and used both internally and externally; but the more violent the Constriction is, the more expedient it is to begin the Cure with external Applications, because internal Medicines can hardly be swallowed without the greatest Difficulty. Some of these external Medicines, by drawing the Afflux of the Humours to the inferior Parts, and rendering the Circulation of the Blood equal, breaks the Force of the Spasms: Of this kind are Clysters, and Bathing the Feet. The Clysters ought to be prepared of emollient Substances, with an Addition of Corroboratives, and repeated twice or thrice. The Baths for the Feet are to be pretty warm, and the Legs are to be immersed pretty deeply in them. The Topics to be applied to the Part affected are generally paregoric and nervous Liniments, which may be prepared of the Aqua Anhaltina, Spirit of Sal Ammoniac, the Essences of Saffron and Nutmeg, Castor, and Camphire, and the Balsam of Life; which, if mixed with the Anodyne mineral Liquor, is an excellent Medicine, when the Disease is at its greatest Height. It also proves beneficial, when a few Drops of it are poured upon Sugar, kept in the Mouth, and slowly swallowed. This Intention is, also, answered by a few Grains of Theriaca, kept under the Tongue, and again spit out. An Ox's Bladder full of some warm emollient Decoction, and applied to the Part affected, is, also, of considerable Service in relaxing the Spasms.

Among internal Antispasmodics the most valuable are the Oils of sweet Almonds, and of Olives, mixed with Sperma Ceti; antispasmodic Powders, prepared of Cinnabar; the Pulvis Marchionis, prepared Amber, and the Extracts of Saffron and Castor, or the nitrous Powders, with one or two Grains of Camphire; as, also, the anodyne Liquor, either alone, or mixed with Essence of Castor; the Spiritus Bezoardicus Buffii, or the succinated Spirit of Hartshorn, or the Spiritus Nitri Dulcis, mixed with a few Drops of the genuine Oils of Chamomile or Mace: But, when the Disorder becomes chronical, we may use alternately, every other Day, with these, the antispasmodic Pills, which I generally prepare of the Extracts of Yarrow, Chamomile, and St. John's-wort, Mithridate, the Extracts of Saffron and Castor, and the distilled Oils of Mace or Mint.

When the Spasms are alleviated, the Physician who intends to remove the material Causes of the Disorder, ought carefully to inquire, which of them contribute to its Production; for, if the Disorder is produced by acrid Substances, Poisons, drastic Purgatives, or Emetics, their Force is, with all Expedition, to be obtunded with mucilaginous and oleous Substances, and with Preparations of Milk. This Intention is answered by pretty pinguious Broths, and Draughts of warm Water continued to a Nausea, that, thus, a gentle Vomiting being excited, the Poison may be again carried off.

Sometimes Acids subdue the Force of Poison: And by these, *Hoechstetterus*, in the Case before-mentioned, affirms, that he cured a Constriction of the Gullet produced by Malmsey Wine, in which Consound had been boiled. And *Forestus*, in the Part before-mentioned, informs us, that a Constriction of the Gullet, produced by Aqua-fortis, was happily cured by Mucilage of Quinces.

When violent Anger, excited at Meals, brings on Spasms of the Gullet, there generally happens, at the same time, an Effusion of Bile into the Stomach. In this Case, besides the Mitigation of the Commotions, the Bile is to be corrected, lest it acquire a corrosive and virulent Quality; after which it is to be eliminated from the Body, by gentle Emetics, or Cholagogues.



The Bile is corrected by absorbent and mucilaginous Substances, such as Decoctions of Oats, or Barley. The Bile, on the other hand, is most commodiously eliminated by Preparations of Manna, join'd with those of Rhubarb, or by Vomit, when these Preparations are heighten'd by one or two Grains of emetic Tartar, or Ipecacuanha. But we are to take care, that the Emetic, or the Purgative, be not exhibited immediately after the Fit of Anger.

But if the Spasms of the Gullet are produced by a Dyscrasy of the whole Mass of Humours or, particularly, if acrid and viscid Sordes of the Primæ Viæ lay a Foundation for a long-continued Disorder of this Kind; these Sordes are to be corrected by inciding, resolvent, digestive, and absorbent Medicines; and evacuated by Preparations of Manna, Rhubarb, and the Pilule Balsamicæ. But as the Disorder frequently proves obstinate to this Treatment, there will be no Medicine found more efficacious, than medicinal Waters; among which, the best are those of *Sedlitz*, drank for about four Days, and then succeeded by those of *Egra*. In hypochondriacal Disorders, also, where the Excretions of Blood, whether by the Uterus, or hæmorrhoidal Veins, are suppressed, besides Venesection and Exercise, the *Caroline* Baths, duly used, are, of all other Things, the most beneficial.

A Nausea, produced by acrid, acid, and viscid Sordes of the Primæ Viæ, requires the same Cure with that before mentioned. But singular Service is done by vinous Infusions, prepared of resolvent, aromatic, and evacuating Herbs and Roots. In a Nausea, accompanied with a Bitterness of the Mouth, *Gabelchoverus*, in *Cent. 1. Cur. 14.* recommends an Infusion of the Root of wild Radish in *Rhenish* Wine, to be drank every Morning. If a Nausea, accompanied with Loathing, is produced by using any fetid Substance, or sordid Aliments, it is expedient either to excite a Vomiting, or to chew Lemon or Orange-peel, or to use generous Wines. If, whilst malignant Fevers rage, any one is, without a manifest Cause, seized with a Nausea, 'tis forthwith expedient to exhibit a gentle Vomit, consisting of about fifteen Grains of Ipecacuanha; by which means, the Contagion being eliminated, the Fever is either prevented, or, at least, render'd more mild and benign in its Progress.

Chronical Spasms of the Oesophagus, which depend on a Weakness of the nervous System, and often recur, are rather to be cured by dietetic Preparations and Aliments, than by strong Medicines; for, in this Case, we are, for ordinary Drink, to choose Decoctions prepared of Viper's-grass, Succory, and Cinnamon. All Malt Liquors are to be abtained from, and the Patient is to use generous Wine moderately. The Aliments are to be light, and small in Quantity, but Exercise is to be frequently used. For corroborating the Stomach, balsamic Elixirs, prepared without a spirituous Menstruum, are to be used. The Redundance of the Blood is to be diminished by properly repeated Venesections; and the Generation of Sordes in the Primæ Viæ is to be prevented by gentle Laxatives. But, above all, the Passions of the Mind, which so greatly contribute to the Production of Spasms, are to be carefully guarded against; then the *Caroline* Springs, and afterwards the Baths of *Toeplitz*, are to be used.

#### PRACTICAL CAUTIONS.

The Physician who, in order to sooth Spasms of the Oesophagus, intends to bathe the Feet, with a View to drive the Humours from the superior Parts, ought to take care, that the Feet be not too cold; for in this Case, the Bathing is to be defer'd for some time; and the Feet are to be previously warm'd by Frictions, and Vessels full of warm Water placed under them. This Rule is, also, to be observed with respect to the Use of Venesection.

If a Constriction of the Fauces is join'd with a Redness of the Face, Inflation of the Vessels, and a Pulsation of the large Arteries of the Head, a Vein is to be open'd, for fear of an approaching Apoplexy. Where there are hysteric, or hypochondriac Symptoms, and Suffocations, as it were, already present, Venesection is, also, to be used; tho' not in the Arm, but rather in the Foot; since the Paroxysms are rather heighten'd, by taking Blood from the former.

When the Spasms seize the inferior Part of the Gullet, the Liniments, and other external Medicines, are not so much to be applied to the Breast and Præcordia, as to the Spine of the Back; as *Johannes Langius*, in *Epistol. Medic. Part 2. Epistol. 43.* shews from *Aetius*, and *Galen*, and, which is still better, from Experience: For, as the Oesophagus is immediately connected with the *Spina Dorsæ*, the Force of Remedies applied to the latter will the more certainly penetrate to the former.

In the suffocative Paroxysms of hysteric Women, where the Patients lie half-dead, in order to rouse them, besides Clysters, volatile, fetid, oleous Substances, and Preparations of Castor, are useful, when applied to the Nostrils; as, also, the Feathers of Partridges, and other fetid Substances, kindled; for these are of singular Efficacy in soothing irregular Motions.

For exasperating, and more effectually confirming the Spasms, both of the Pharynx, and inferior Parts of the Gullet, nothing

contributes more than the Use of drastic Purgatives. 'Tis always expedient to substitute, in the room of these, mild Laxatives; such as balsamic Preparations of Manna and Rhubarb; or, if the Disorder is join'd with Flatulencies, oleous and carminative Clysters.

A Constriction of the Fauces, succeeding an acute Fever, besides a proper Regimen, is to be relieved by antispasmodic and analeptic Medicines; such as the *Pulvis Marchionis*, Nitte mix'd with Camphire, and the *Tinctura Bezoardica Michaelis* mix'd with the *Mixtura Simplex*; for, in Cases of this Nature, Opiates, and the grosser Astringents, are as bad as Poison.

Spasms of the Oesophagus, produced by Worms vellicating the *Primæ Viæ*, cannot be removed, till the Worms are eliminated. But, in this Case, we are to use Purgatives very cautiously; and, if Mercurials are exhibited, the Patient ought, immediately after, to drink Oil of sweet Almonds, lest the Intestines should be too much vellicated by them.

When the Constriction of the Oesophagus is so great, that no Aliments can pass, and, at the same time, continues long; then, lest the Patients should be wasted away, it is expedient to inject milky and nutritive Clysters: Concerning which, see *Langius* in *Epistol. Medic. Lib. 1. Epist. 80.*

Among the convulsive Motions of the Oesophagus, we may reckon those Concussions of the Breast, which happen with a Noise in Children, when seized with Epilepsies, and which are generally taken for a Species of Hiccup: But they are really nothing else than convulsive Concussions of the Oesophagus, and adjacent Parts; and they are generally the fatal Forerunners of the Patient's Death. In this Case, the Physician is to use mild Antiepileptics, anodyne and analeptic Medicines; but, at the same time, he is to predict instant Death. *Frederic Hoffman.*

OESTROMANIA. The *Furor Uterinus*.

OESTRUM VENERIS, in Anatomy, is the CLITORIS.

OESYPE, or OESYPOS, οἰσύπη, or οἰσύπος. The Sordes of Wool. See LANA.

OFFA HELMONTIANA.

Take of the alkaline Spirit of Sal Ammoniac, so strong as to leave much of its Salt undissolved at the Bottom; put into a cold and dry cylindrical Glass, with a narrow Mouth, so as to fill about one half thereof; pour to it, gradually, a Quantity of pure cold Alcohol, so as to run gently down the Sides of the Vessel, till it be full; a white Coagulation will be made upon the Surface, where the lighter Alcohol rests upon the alkaline Spirit. If the Glass be now inverted, there will instantly appear a white opaque Coagulation, where the Alcohol and alkaline Spirit mix; and, when they are both well shaken together, the Whole becomes a white opaque consistent Mass, concentered together like Stone, so that not a Drop will fall out of the Glass, while inverted. Stop the Vessel close, and set it by: Thus the Mixture will soon resolve into a Fluid, that floats at Top, and a dense, saline Concretion, that falls to the Bottom; so that, in a Year's time, the Salt will almost become solid below, with a Liquor floating above it. If the whole Mass, thus produced, be distilled with a soft Fire, an alkaline, balsamic, oily, solid Salt, will sublime. The colder the Season, and the Place, in which the Experiment is made, the better it will succeed.

#### R E M A R K S.

This is one of the more difficult Experiments in Chymistry, as it requires both the Liquors to be perfect, and the Observance of several Circumstances, any one of which being wanting, will cause it to miscarry; but, if they all be observed, it will succeed. Here, then, we see, that pure volatile alkaline Salt will closely attract to itself the most subtle Oil that is known, that is, Alcohol; whence the Soap so produced is the most subtle and penetrating of all Soaps, consisting of an exceeding subtle and volatile Alkali and Oil, wonderfully united together in an Instant. If this Medicine be diluted with Canary, and taken upon an empty Stomach, it passes, perhaps, through all the Vessels of the Body, resolves Concretions, opens Obstructions, excites the vital Powers; and thus successfully cures many dangerous Distempers, proceeding from an obstructing Matter, capable of being resolved by it. But its Virtue vanishes too soon, as being so extremely volatile, and therefore becomes unequal to the more stubborn Distempers. It is highly commended in the Jaundice, unattended with an acute Inflammation; it does not dissolve the Stone, or prevent the Concretion or Increase thereof; it seems to agree with Salt of Tartar rendered volatile; it dissolves in a gentle Heat, like Ice, and returns to a solid Form in the Cold. If pure Alcohol be thus mixed with One-third of dry volatile Alkali, it makes a much more solid Soap, as being without Water, which is always double the Quantity in the strongest alkaline Spirit, with respect to the pure Salt. *Helmont* needed not have apprehended the sudden Generation of the Stone from hence; for this Matter is not the Stone, but dissolves with Heat, diluted with Water, and proves totally and spontaneously volatile; so that



that it has nothing in common, nor like to the Stone. *Helmont* was not the Inventor of the Experiment, though the Production be called *Offa Helmontiana*; but *Raymond Lully*, long before him; and the *English* Author upon the Alcahest, supposed to be *George Starkey*, inconsiderately pretends, that this Soap, brought to a Liquor by repeated Distillation, will become the Alcahest of *Helmont*. *Boerhaave's Chymistry*.

OFFICINALIA. Officinal Medicines, that is, those usually found in the Shops.

OFFION. Opium.

OGER, OGERTINUM, and OGERTUM, in *Paracelsus*, is the same as OCHRA.

OLAMPI. The Name of a very scarce Gum, brought from *America*. *Leмери* informs us, that it is hard, yellowish, with a black Cast, transparent, resembling Copal, and sweet to the Taste, with some Degree of Astringency. It is esteem'd detergent, drying, and resolvent.

OLCA. The same as HOLCA; which see.

OLDENLANDIA.

The Characters are;

It hath a Rose-shaped Flower, consisting of one Leaf, which is divided into four Parts, almost to the Bottom, and rests on the Empalement; which Empalement, afterward, becomes an almost globular Fruit, having two Cells, which contain many small Seeds.

*Miller* mentions but one Sort of *Oldenlandia*; which is,

*Oldenlandia humilis* *Hystopitola*. *Plum. Nov. Ger.*

This Plant was discover'd in *America* by Father *Plumier*, who gave this Name to it in Honour to *Henry Bernard Oldenland*, a *German*, who was a Disciple of Dr. *Herman*, at *Leyden*, and was a very curious Botanist. *Miller's Dictionary*, Vol. 2.

OLEA.

The Characters are;

The Leaves are oblong, and always green; the Calyx is dentated, and swelling like a Bottle. The Flower is monopetalous, with its lower Part tubulated, and the upper multifid; the Lobes, or Segments, expanding in Form of a Star. The Ovary, in the Centre of the dentated and multifid Calyx, becomes a roundish, pulpy Fruit, containing one, or generally two Stones, inclosing Kernels.

*Boerhaave* mentions five Species of *Olea*; which are,

1. *Olea*; sativa. *Ger.* 1026. *Emac.* 1392. *Park. Theat.* 1438. *C. B. P.* 472. *J. B.* 1. *Rai Hist.* 2. 1541. *Boerb. Ind. A.* 2. 218. *Olea*. Offic. THE OLIVE-TREE.

The Olive-tree grows to a great Bigness in its native Climate, being full of Branches, whose Twigs are of a grey or ash Colour; having two Leaves set opposite at a Joint, of an hard firm Texture, of a long oval Shape, whitish underneath, and of a sad Green above; among these grow Bunches of small, yellow, monopetalous Flowers, cut into four Sections; and after them come oval Fruit, of different Magnitudes, some being as big as a large Plum, as the *Spanish*, and several others; and some, as the *Luke Olive*, a great deal less. They are green at first, and black when ripe, having an hard Stone in the Middle, which is sharp-pointed at both Ends, when ripe; they are hot and burning in the Mouth.

The Olive-tree grows in *Spain*, *Italy*, and *Turkey*; from whence the Oil, and the pickled Olives, are brought to us.

The Oil is press'd out from the Olives, which are laid together awhile, to wither, and then ground in a Mill; and, having hot Water pour'd on them, they are press'd out, the Water subsiding, and the Oil swimming on the Top. What is drawn from the unripe Olives, is called *Omphacium*, and is accounted drying and restraining, and fitter for some external Remedies: What is press'd out of the ripe Fruit, is called Oil of Olives, being what is generally eaten, and made use of in Medicines; the different Fineness being from the different Care and Management in the making it. The sweetest, and what we esteem most, comes from *Flavine*.

Oil is moderately heating and mollifying, rendering the Body lax and soluble; it is good for Disorders of the Breast and Lungs, tempering the sharp choleric Humours in the Bowels; and to helps Gout, and the Colic; and is useful against all corrosive mineral Poisons, as Arsenic and Sublimat, &c. It opens the urinary Passages, and is good for the Stone and Gravel. The pickled Olives are grateful to the Stomach, and provoke an Appetite; the ripe ones are more eaten in the Eastern Countries, among the *Greeks*, being great Part of their Food, especially in *Lent*. *Miller's Bot. Off.*

The *Portuguese* Olive-trees, says *Clusius*, bear a lesser sort of Olive, [such are those of *Lucia*, and other Parts of *Italy*, which are most in Esteem among us] which yet yields much Oil, and that of the best kind. So there are some Olive-trees in *Languedoc* and *Provence* in *France*, and in *Andalusia* and *Granada* in *Spain*, which produce a smaller Olive, but what yields more and far better Oil, than the larger Olive.

They gather the Olives in *November*, *December*, *January*, and *February*, in the Kingdom of *Granada*, where they are not ripe before. Then they throw them on the Floor, and let them lie till they become wrinkled, then grind them, and press out the

Oil. Some strike off the Olives with Poles; but are blamed by others, who gather them with the Hand, by Help of Ladders, that they might not frustrate their Hopes of the next Year's Harvest, by striking off the Buds; for an Olive-tree is very much injured by Beating. It was a very ancient Law established among Olive-gatherers, as *Pliny* tells us, "Never wound nor beat an Olive-tree."

In *Spain* and *France* they generally pickle them before they are ripe, tho' sometimes they pickle those which are ripe and black. Pickled Olives, with us, serve as Sauce to Roast-meat, especially Mutton; and they are also eaten in Salads. The *Italians* serve them in at a second Course, and eat them with Bread; they excite an Appetite, provoke to Stool, and dry and streng hen a too humid Stomach.

The Olive-tree was consecrated to *Minerva*; either because it was the Gift of that Goddess, or, as *Martianus Capella* supposes, because Arts and Sciences, which are under her Protection, are best learn'd in nocturnal Lucubrations, by the Light which Oil affords. The Olive-tree was, also, an Emblem of Pardon and Peace; in order to obtain which, the Supplicants used to carry in their Hands Branches of this Tree.

This Tree is distinguished according to its Form, Colour, Juice, Magnitude, Place of Growth, or first Discoverers; all which Varieties it would be endless to enumerate. The Antients have mention'd various Species, whose Names it would be very difficult to accommodate to those known at present, for which Reason we shall pass them over. *Pliny*, *Lib.* 15. *Cap.* 3. seems to make the *Colymbades* a distinct Species; but some will have them to be pure Olives, preserved and swimming in their own Oil, by way of Distinction from the *Halmades*, which are Olives pickled with Salt; others make the *Halmades* and *Colymbades* to be the same thing.

We observe not so many Varieties of Olive-trees, as of Apple-trees, Pear-trees, and Plum-trees; either because the Olive-tree, in its own Nature, is less subject to vary, being produced from Seed, or because it was not worth the Planter's while to spend his Pains and Industry in attempting to multiply Varieties: To this may be added, that the Tree, being impatient of Cold, will not come under the Care of the *French*, *German*, and *English* Gardeners, who are most curious and active in procuring and producing new Species of Fruits.

According to *Cherlerus*, the Antients were very solicitous in preserving Olives; tho' they are, in reality, only suited to gratify the Palate: So unbounded was their Luxury, that they even made bitter Substances subservient to it; for nothing has a more ungrateful Taste than Olives, either ripe or unripe. But Art found Means of bestowing upon them that grateful and agreeable Taste, which Nature had denied them. Tho' *Columella* and *Palladius* furnish us with various Methods of preserving Olives, yet they are, at present, generally imported to us, preserved in a very simple Manner, by means of a Brine prepared of Vinegar and Salt.

Tho' Olives, when ripe, are of a blackish Colour; of an acrid, bitter, and nauseous Taste; yet the Oil expressed from them is generally pellucid, of a somewhat yellowish Colour, and of a sweet and grateful Taste. Hence 'tis obvious, that the ungrateful Taste and Smell only reside in the aqueous Part, or that which remains after the Expression of the Oil: But that Oil is reckon'd the best, which is most free from all Colour and Taste.

According to the Antients, ripe Olives are moderately hot; but they soon become corrupted, and prove offensive to the Stomach, Eyes, and Bladder. When roasted and applied, they stop *Nomae*, and remove the Scurf about the Edges of Carbuncles: When unripe, they are of a drying and astringent Quality. Preserved Olives are said to be of an astringent Quality, to corroborate the Stomach, and excite an Appetite. Those imported to us are preserved before they are ripe; but 'tis sometimes usual with the *Italians*, to preserve such as are black, and perfectly ripe.

The Leaves of the Olive-tree are of a drying and astringent Quality. They are only used externally, especially in Fluxes, immoderate Discharges of the Menfes, an Herpes, and other Disorders of a like Nature. According to *Dioscorides*, they are better adapted to Medicines intended for the Eyes, than the Leaves of the wild Olive; because they are of a milder and more gentle Nature. That Substance which is within the Kernels of Olives, if mix'd with Lard and Meal, removes scabrous and rough Nails.

The Juice, which drops from recent Olive-branches, when they are kindled, cures Lichens, scurfy Disorders, and running Ulcers.

*Pliny* informs us, that when *Augustus*, happening to visit *Pollia Romulus*, then above an hundred Years old, asked him, By what means he had so effectually preserved the Vigour of his Body, and the Powers of his Mind? the latter answer'd; By the internal Use of Mulsam, and the external Use of Oil. *Cardan*, also, affirms, that three Things powerfully contribute to Longevity; which are Milk, Honey, and Oil, not externally used, but taken inwardly, and among the Aliments. *Aristotle* was of Opinion, that every Man ought to be well provided in Salt and Oil, because both of them greatly contribute to Longevity.



Oil seems to be of an aereal Nature, for which Reason it floats in Water; and cannot be easily mixed with aqueous Liquors; but, though shaken along with them, soon disengages itself, and rises to the Surface. But when these aqueous and oleous Liquors are shaken together, and intimately mixed, they assume a whitish Colour, and resemble Milk.

According to *Dioscorides*, that Oil which is expressed from unripe Olives, and for that Reason called *Omphacinum*, is most conducive to Health: And that *Omphacinum* is best, which is recent, fragrant, and not of a biting Taste. This Kind is, also, most proper for the Composition of Ointments: It is, also, beneficial to the Stomach, in consequence of its astringent Quality. If held in the Mouth, it braces up the Gums, fixes the Teeth, and checks Sweats. It is of a refrigerating, drying, and astringent Nature; for which Reason it is used as an Ingredient in many Compositions.

The Oil expressed from ripe Olives is moderately heating and moistening; but the old is hotter than that which is recent. It is, also, of an emollient, digestive, and vulnerary Quality: If an Ounce of it is drank with warm Ale, it renders the Body soluble, removes a Driness of the Breast, allays Gripes, relaxes the urinary Passages, and cleanses and consolidates such as are corroded: Externally it is frequently used in Clysters, and for the Cure of hot Tumors: When drank with warm Water, it excites Vomiting, for which Reason it is generally exhibited against Poisons.

*Schroder* informs us, that in *Westphalia*, his native Country, it is customary to exhibit to wounded Patients Oil of Olives mixed with warm Ale, in so large Quantities, that the Sweat of the Patient often smells of the Oil.

In order to render the Body soluble, a Piece of toasted Bread, soaked in Oil, and eaten every Morning, is highly recommended: And this, says *Cherlerus*, is a very grateful Medicine. *Borelli Observat.*

*Pliny* informs us, that Oil refreshes the Limbs; and it is certain, that the Antients frequently anointed the Body with Oil, because they imagin'd, that it not only procured Strength and Vigour, but, also, preserved the Tone of the Parts. But this Custom is long ago abolished, and in my Opinion very deservedly; partly on account of its Nastiness, and partly because it obstructs the Pores of the Skin, and hinders Perspiration, which is absolutely necessary to the Preservation of Health.

According to *Pliny*, in *Hist. Natural. Lib. 11. Cap. 19.* not only Bees, but, also, all other Insects are killed by means of Oil; which *Malpighi* found true in Silk-worms, and other Insects: The Reason of this is obvious, since the Oil obstructs the Passages, or Pores, through which the Air enters, and returns; in consequence of which, the Animal is forthwith destroyed: Nor is Respiration less, but rather more, necessary to these Insects than to larger Animals, since, in the former, the Vessels destined for the Reception of the Air are larger in proportion, more in Number, and more dispersed through all the Parts of the Body, than in the latter.

Oil, according to *Pliny*, extracts Pitch from Cloaths, an Effect not to be obtained by Water. And *Sennertus*, in *Hypom. 1. Cap. 5.* informs us, that, when the Hands are stained with Pitch, they cannot be made clean by means of Water, but by Oil, or some pinguious Substance, which melts the Pitch.

In a Vessel full of Oil, the superior Part is best; for the inferior is too much contaminated by the Amurca; and the Surface is best of all, because it is at the greatest Distance from the noxious Part, and is not injured by the Air. *Plut. Sympot.* The same is, also, asserted by *Macrobius*, in *Saturnal.* who, also, affirms, that the middle Part of Wine, and the lowest Part of Honey, is the best.

*Dioscorides* and *Galen* inform us, that the Oil obtained from the Twigs of the Olive-tree is useful for a great many Purposes; but though the former affirms, that this Oil is made of the Twigs, yet the latter asserts, that, in the Preparation of this Oil, they only add the Buds, produced by the Olive-tree. *Raii H. P.*

With respect to the Oil of Olives, it is remarkable, that, if rubbed upon any Part wounded by a Viper, it effectually prevents all the ill Consequences. See *VIPERA*.

2. Olea; sylvestris; folio duro; subtus incano. *C. B. P. 472. Tourne. Inst. 599. Boerb. Ind. alt. 2. 218. Oleaster. Offic. Oleaster sive Olea sylvestris. Park. Theat. 1438 J. B. 1. 17. Olea sylvestris. Ger. 1206. Emac. 1392. Raii Hist. 2. 1542. THE WILD OLIVE-TREE.*

As it is agreed by Botanists, that the Garden Olive-tree differs from the wild only in Culture, and that the former, if neglected, will degenerate into the other, which, also, is produced from the Kernel of the Garden Olive, it must certainly be granted, that the Oleastrum differs from the Olea, not in Species, but in some accidental Circumstances, for which Reason we shall be the shorter in its Description.

The Oleaster, in Bigness of Trunk or Branches, is not inferior to the Olea; but has fewer Branches, and those set with Thorns. The Leaves, also, are less, though of the same Shape; the Fruit, also, is like an Olive, but less, more shrivelled, and containing an acrimonious purple Juice. To this *Clusius* adds, that the Bark

is smoothish than that of the Garden Olive-tree, that the Fruit has a recurved Point, and all the Parts are remarkably bitter.

In *Theophrastus* the Trunk is described as gaping, and discovering some peculiar Caverns, as in the Garden Olive-tree: This Defect in the Tree has the Name of *Gongri*.

The Victors at the *Olympic Games* were usually crowned with the Oleaster, as we are informed by *Pliny*, who, also, says, that the Oleaster of *Olympia*, with which *Hercules* was first crowned, was religiously preserved down to his Time, as was the Olea which was said to be proposed by *Minerva*, in a Trial of Skill, at *Athens*.

The Oleaster delights in an argillaceous and stony Soil, as does the Olea, and grows in the same Places. *Dioscorides* and *Pliny* say much of the Virtues of the Leaves of the Oleaster; for which the Reader is referred to those Authors; We suppose the Leaves, in this respect, are not much different from those of the Olea, only more effectual in their Operation: Nor is the Oil, which the Fruit affords, any way different from *Omphacinum*, except that it is hotter, more potently astringes, and, yet, at the same time, deterges. This Oil is not used in Food; but, if any one constantly uses it about his Head and Beard, he will find it to retard Greyness. *Amatus*, from *Dioscorides*, says, that it stops the Falling-off of the Hair, deterges Scurf and Achors, Itch and Leprosy.

For the *Elæomeli*, which, according to *Pliny*, distils from Olive-trees, according to *Dioscorides*, from a certain Trunk, see *ELÆOMELI*; the Account of it is very much illustrated by *Lobel* and *Pena*, who tell us, that the Olive-trees in the Vineyards of *Montpelier*, being wounded in the Trunk, discharge an Honey, or *Elæomeli*: They assure us, from their own Experience, that from their common Olea, which is a Tree of a very bitter and unpleasant Taste, in its Bark, Trunk, and Fruit, also, before it is pickled, there distils a truly melleous Liquor, resembling Honey, not only in Colour and Taste, but in keeping uncorrupted; and that, by slightly wounding the Trunk with a Penknife, through the Chinks of the Bark, they obtained enough of this Liquor, not only to gratify their own Curiosity, but to impart to their Friends. But it will be in vain to expect this Honey, unless the Olive be nearly ripe and blackish. From those Trees, also, especially from Wounds made in the larger Trunks, was discharged a glutinous Liquor, more liquid than Honey, at first; but, after it had stood a-while, becoming more dense with the Cold, resembling rather Manna than Honey, in Appearance, Taste, Relish, and Manner of Concretion, in the Opinion of all who examined it.

As for the *Ethiopian Olive-tree*, mentioned by *Strabo* and *Dioscorides*, which discharged a Tear, like Scammony, or, according to *Paulus*, like Gutta Ammoniaca, and suspected by *Cæsalpinus* to be Gum Elemi, we are not certain what Sort of Tree it is, and whether it be the same with the common Olive-tree, or not. However, we are told by *Dioscorides*, that this Tear is good for a Cicatrix and Albugo in the Eyes, and for Dimness of Sight, the Eyes being anointed therewith; that it provokes Urine, and the Menses; and, put into an hollow Tooth, eases the Pains thereof, expels the Fæcus, and cures the Impetigo and Leprosy; and that, used in Medicine, it is of a deleterious Quality. *Raii Hist. Plant.*

3. Olea; Afra; folio Buxi, crasso, atroviridi, lucido; cortice albo, scabro.

4. Olea; Afra; folio longo, lato, supra atroviridi splendente, infra pallide viridi. *Slangenbout vulgo Batarvis.*

5. Olea; Afra; folio longo, angusto, pallide viridi; fructu rotundo, purpurascete. *Boerb. Ind. alt. 1. 1ant.*

OLEAMEN. A thin Liniment, composed of Oils. *Scribonius Largus.*

OLEANDER. The Rose-bay. See *NERIUM*.

OLEASTER. See *OLEA*.

OLEASTER GERMANICUS. A Name for the *Rhamnoides*; fructifera; foliis Salicis; baccis leviter flavescens.

OLECRANON, ὀλέκρον. The Elbow.

OLEITAS. Oiliness. *Rulandus.*

OLENE, ὀλένη. The Cubit.

OLEUM. Oil. Various Sorts of Oils are used in Medicine, prepared from Animals, Vegetables, and Minerals. Animal Oils are their Fats, which are originally vegetable Oils. All animal Substances yield these Oils, together with their volatile Salts, in Distillation: For an Account of which, see the Article *CERVUS*.

Vegetable Oils are principally procured by Expression, Boiling, and Distillation.

There is a certain Part in Plants, which, being either spontaneously fluid, or easily made so by a gentle Heat, is called their Oil. This Oil may become thick by long standing, as we see in the Oil of Turpentine, which, though extremely fluid at first, manifestly thickens by degrees. It may, also, grow thick with Cold, and thus appear knotty like Fish-spawn; it may even become solid, as we see in Wax; but by what means soever it thus becomes hard, it flows again upon being applied to the Fire. This Oil, therefore, whenever it becomes liquid, is, at the same time, unctuous, or exceeding soft and slippery to the Touch; though it has, at the same time, a certain Tenacity, or Viscosity, [P. 6 \*]



# OLE

in its Parts, not found in Waters and Spirits. Again, these Oils are always inflammable, and feed both Fire and Flame, being themselves disposed to go into Flame; a Property not found in Air, Water, or Earth. Lastly, Oil will not intimately mix with Water, but, when shook therein, repels the Water from it, collects together, and separates into a distinct Liquor; in which respect it differs from Spirits. Vegetable Oil, therefore, is an unctuous inflammable Liquor, that does not mix with Water.

This Oil is found of many different Kinds in Plants; the volatile Sort, which is produced in the Distillation of the Waters from unctuous Vegetables, lodges the presiding Spirit, which contains the Taste and Smell of the Plants; whence in this Oil the particular sensible Properties of the Plant manifestly reside; which, being once separated, robs the Plant of its Nature: Thus, if all this Oil were totally extracted from Cinnamon, Mace, Cloves, or Nutmeg, these Bodies would remain of their pristine Form, so as to be perfectly known, though they retain nothing of their peculiar Properties: For, when all this Oil is taken away, those Spices can no longer be distinguished by the Smell or Taste; though the Body of the Oil receives not its Smell and Taste from itself, but entirely from that Spirit, which, when present, distinguishes these Oils, and, when absent, leaves them scarce distinguishable, and almost of one and the same Nature.

Sometimes, in certain Plants, and particular Parts thereof, this Oil is collected pure, in little peculiar Cells, or Receptacles; at other times, oily Particles are mixed with the Juices of Plants, and so dispersed therein as scarce to appear in the Form of Oil, but lie concealed in that of Soap. But when these latent oily Particles associate, or separate from the rest, they immediately appear in the Form of Oil. Thus the Juices of a Plant being extracted with Water, inspissated, made saponaceous, and dried, it is manifest, that they contain Oil, by their burning. On the other hand, a pure Oil distils from the Incisions made in the Fir, the Pine, and the Larch-tree. A transverse Section being made into the Root of Mallowwort, newly dug up in the Winter, we may, by the Help of a Microscope, perceive little Drops of gold-coloured Oil, oozing out from certain Vessels on the Surface; and the same holds true of a Nutmeg, or Almond, cut with a warm Knife. But we find this Oil no-where more plentifully than in Coryledons, or seminal Lobes of Plants; where it defends the tender Embryo from the pernicious Effects of unseasonable Weather, or too great Cold; for Freezing might probably prove destructive to so fine a Structure. This Oil, likewise, is in the Winter-time found driven toward the Bark, by the preceding Summer; and, being there more drained from its watery Moisture, is collected in great Abundance, especially in the Ever-greens. The Oil of Vegetables, therefore, chiefly abounds in their more durable Parts, in order to defend the other natural and more necessary ones; and is therefore found in such Parts, as are farthest removed from the absorbing Vessels of the Roots, and the nutritional Juice there drawn in from the Earth: Thus, more Oil is found in ripe Linseed, than, perhaps, in all the other Parts of the Plant together. Sometimes, also, this Oil is collected in such Quantity as spontaneously to appear in its proper Form, burst its Cells, and run out; whence the Barks of Trees and Fruits principally afford it, as we see in Pine-apples, Juniper-berries, and the like, especially in the Ever-greens, where the outward Bark is often cased over with this Oil. The Trees in the Northern Regions, which grow upon the high Mountains, exposed to the freezing Cold, more particularly afford it; whence it should seem, that this Oil is highly requisite to defend the Life of Vegetables against the freezing Cold of Winter. We likewise observe, that these fat Oils principally grow and collect in full-grown Plants, that soon after seem, as it were, to sleep, or become aged; for both Herbs and Trees contain little Oil in their young growing State, but are distended with a diluted thin watery Juice: Thus Flax, soon after it is first sown, rises in the Form of Grass, and is merely aqueous; but, when come to Maturity, it loses its Greenness, grows yellow, and now affords a copious Oil, especially in its Seed: And the same holds true of a young Pine, compared with one that is full-grown. It is, also, observed, that the shrubby Plants, which have lively Roots, gradually contract themselves upon the Approach of Winter, withhold their Juices, perspire but little, receive little Nourishment from the Earth, nor throw much off into the Air; and thus they continue to do in an higher Degree, as the Winter comes on, till at length they, in a manner, rest. On the other hand, as the Spring approaches, all begins to move again; they take in Nourishment, and perspire. If these Autumnal or Winter-seasons may be called Times of Sleep, and the Summer and Vernal Periods, Times of Waking, in Plants it will generally appear, that the Oils of Vegetables are increased in their Sleeping, but their Water in their Waking. Thus the Root of Mallowwort, being perfectly leafless in the Winter, and lying hid and unactive in the Earth, may be called dormant; but if now dug up, and examined, it will be found rich in Oil; but, if again dug up in May, it appears aqueous, saline, and by no means so oily as before; and the same is observed in Trees. Lastly, We see that old Trees are oppressed with their own Oil, and thence suffocated, through the abundance of Fat, as the Pine, the Fir, and the like, where this Oil appears in the

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Form of a Gum; but in others, under that of Rosin, Oil, or Balsam. And hence it is, that Gardeners so frequently complain of the Death of Trees, obstructed in their Bark; which thus die, as Animals do, when choaked with their own Fat.

The Chymist, therefore, who would extract the Oils of Vegetables, should first learn from Botany, that there are certain Seasons, wherein Plants abound with Water and Salt, and then but little with Oil; and again, that there are other Seasons, wherein they principally abound with Oil, and but a little with Water and Salt; for whilst new Leaves, Flowers, and Fruit, are forming in Plants, the Motion of the aqueous Juices, pregnant with Salt, is promoted, and the sluggish Oils excluded; but, when the Leaves begin to wither and fall off, the Flowers to shed, or the Fruit to ripen, or spontaneously fall off, when perfect, then the oily Parts gradually collect together, and reside; the more subtle ones being dissipated by the Summer's Heat: Whence Builders fell their Timber in the Midst of Winter, that it may be durable, and Proof against Moisture and Rottenness. For all the hardest, most ponderous, and lasting Woods, are found to abound with a ponderous Oil: Thus Cedar and Lignum Vitæ contain an exceeding heavy, compact, and copious Oil. Chymists, therefore, must choose their Subjects for Salt, at a certain Season, and for Oil at a very different one.

## THE PROCESS.

1. The ripe Seeds of most Vegetables, when they begin to fall, and grow dry, contain a copious native Oil: These Seeds therefore, being taken, and somewhat farther dried, are ground into a kind of Meal; but, if they prove too unctuous for this Purpose, let them only be bruised in a Stone Mortar; by which Action alone some of them will yield an Oil, such as Almonds, Pine-nuts, Pistachios, and the like: Let the Meal thus procured be suspended awhile in the Vapour of boiling Water; and then again be gently dried, to open it the more, and fit it the better for yielding its Oil by Expression: Put this Meal or Paste into strong hempen Bags, which are to be close tied up, and place them between two Iron Plates, heated in boiling Water; and squeeze the Bags in a strong Press; and thus, the Oil being melted by this innocent Heat, will sweat and drop through the Bags into a receiving Vessel, placed underneath, without Empyreuma, but almost as it naturally existed in the Plant. And by this means may an Oil be drawn from the Seeds of the least oleaginous Plants, such as Hemp, Flax, Lettuce, and numberless other Subjects; in which no Mortal would have expected such an Oil should lie concealed. In the same manner, a copious Oil may be expressed from Cloves, Mace, and Nutmegs; though the sharp aromatic Virtue of these Spices will not be found in their expressed Oil; for Mace and Nutmeg, when thus treated, rather afford a mild and very thick Balsam, than an hot aromatic Oil, such as they yield by Distillation. I was formerly surprised, that the expressed Oil of Mustard-seed should be ordered with Success in the raging Pain of the Stone; but my Wonder ceased, upon finding this Oil so sweet, so soft, and mild; whereas that by Distillation from the same Seed is so violently sharp and fiery, that, to this Day, I cannot sufficiently wonder at the Difference, as often as I consider it; for it seems difficult to assign the Reason, why this expressed Oil has not the pungent Taste and Odour, which are so remarkable in the distilled Oil; and why the Acrimony of the presiding Spirit, which resides in the Oil, is not here manifest; and this, whether we regard the Water, the Salt, the Spirit itself, or its Oil.
2. The Oil of our present Process contains very little Salt, tho' it has evidently much of the particular Nature of the Plant, as our Senses inform us; but, whilst fresh, it sheaths, blunts, and mollifies, what is acrimonious in the Humours; relaxes the Fibres, Membranes, Vessels, and Viscera, when applied thereto; softens the Hardness of the Flesh, and cures its Crispiness; it mollifies and moistens dead and dry Eschars, and renders them separable from the sound Flesh, by the vital Actions; it defends the naked Parts in Wounds, and prevents the dry Air from hurting them by Desiccation. It, also, prevents the thin Humours from exhaling too much through the open Mouths of the Vessels in Wounds, and thus spoiling the extreme Vessels; and hence it becomes an excellent Remedy for expeditiously healing recent Flesh-wounds. It is, also, accounted a great Anodyne, both as it is emollient, and relaxing. *Boerhaave's Chymistry.* For a farther Account of these Oils, see CHYLUS.

## DISTILLED OR ESSENTIAL OILS, BY THE ALEMBIC, FROM THE RECENT LEAVES OF SAVINE.

All Plants are more or less fit for this Operation; but principally those which are rich in an aromatic Virtue; and none of them are more proper for our present Purpose, than those of an high and fragrant Odour, and a pungent, hot, and grateful Taste: But in the present Process, which opens the Subject of essential Oils,



Oils, we are more particularly concerned with the Leaves of Plants: These Leaves are either the recent ones of Ever-greens, or the fading ones of Plants that shed their Leaves.

The aromatic Leaves of Ever-greens, such as the Arbor Vitæ, Bay, Box, Cedar, Citron, Ivy, Juniper, Lemon, Marum Syriacum, Myrtle, Orange, Pine, Rosemary, Savine, Sage, Thyme; wild Thyme, are almost always full of Oil, but principally in Autumn, and towards Winter; so that the Rule and Method of Working is nearly the same for them all.

But the annual aromatic Leaves, which die spontaneously; though, when green, prove highly odoriferous and aromatic, are to be gathered for our present Purpose, at the time of their full Growth, or just before they begin to decline from their utmost Vigour; for then the aqueous Moisture, and the Salt, being dissipated, leave a more tenacious Oil and Balsam behind; and the principal Plants of this Kind we have enumerated under the Article AQUA. Experience has shewn, that these Leaves, being gather'd at the Time above-mention'd, afford more Oil, if they are somewhat dried in the Shade, and a moderately fanning Air, before Distillation, than if they were immediately committed to the Still, with a watry Juice remaining in them; perhaps, because, the Water being carried off, the Oils unite the closer, and come over in their proper Form; whilst, being divided by the Interposition of the Water, they indeed impregnate the distilled Liquor with their Virtue, though they do not appear in the Form of Oil; but Care must be had, not to use too great an Heat in the Drying, lest the Oil, also, should fly off. Some Leaves, however, are found to contain so large a Quantity of a balsamic Oil, as to afford it copiously upon Distillation; as we see in Mint and Rosemary. There are, also, others that dry with Difficulty, and lose some of their fine Spirit, which enriches the Oil; such as Calamint and Maudlin-tansy; so that some Particulars are always to be excepted from the general Rule.

#### THE PROCESS.

1. Take the green Leaves, therefore, of any of these Plants, which, without bruising, spontaneously and copiously emit their Fragrance: Put them into a Still, whereof they may possess two Thirds; and pour on the distilled Water of the same Plant, to the same Height; then immediately perform the Distillation: And thus Baulm, Calamint, Dill, Dittany, Fennel, Lovage, Marum Syriacum, Marjoram, Maudlin, Tansy, Mint, Origanum, Sage, Savine, Savory, Scurvy-grass, Southernwood, Tansy, Thyme, and wild Thyme, all immediately afford their Oils. But others require to be long digested, in a Vessel exactly closed, together with Sea-salt, or the Spirit of Vitriol, in order to fit them to afford their Oil in Perfection, and in larger Quantity. Thus, if the essential Oils be required from the Leaves of Bays, Box, Calamus Aromaticus, Cedar, Chamomile, Citron, Fir, Hyssop, Juniper, Lemon, Myrtle, Orange, or Pine: Let them be first gently dried, then put into a Still, so as to fill two Thirds thereof; pour on their own distilled Water to the same Height, and for every Pint of Water add half an Ounce of Sea-salt, or a Dram of the Oil of Vitriol; lute the Still perfectly close, and continue the Heat up to ninety Degrees, for three Weeks before the Distillation. But the more tenaciously any Leaves retain their Oils, the more Acid, and the longer Digestion, they require; for Acids loosen and resolve these Oils, and, perhaps, in some measure, increase them, according to the Observation of *Boyle*, *Hoffman*, *Homburg*, and *Le Mort*. Now, therefore, proceed to Distillation, as is directed under the Article AQUA; only observing to make the Matter boil quick, and the Still to run strong; for thus the Oil required will come over with the first Water; whereas, if the Distillation be too slow, the Oil will be agitated by a great Heat; yet not being able to rise, it will be mixed in among the Water and the Leaves, and be thus attenuated, and greatly enrich the Water, to the Diminution of the Oil. Let the Distillation be continued with this Degree of Heat, so long as any Oil comes over with the Water, the Receiver being often changed, to discover how long any Oil continues to rise; for the Distillation should be continued so long as the Water has any considerable Virtues, as mentioned under the Article AQUA; for this Water is serviceable in procuring new Oil.

2. In this Operation, therefore, the Cells and Skins containing the Oil, being soften'd by the Digestion, and burst by the boiling Heat, which sets free, moves, and rarefies the Oil; this is, consequently, liquefied, and thrown to the Surface of the Water, especially if the Plant be *European*. And, as the oily Particles are carried upwards along with the watry, they are together forced into the Worm, where being condensed, by the Cold, into Oil, they are thus transmitted into the Receiver pure, considerably natural, without any Empyreuma; and excellently retaining, in a small Compass, the Odour, Taste, and peculiar Virtues of the Plant; leaving its Remainder perfectly deprived of all the Oil, by the Distillation, and almost without any Mark of

its own Nature: For the Oils of Box, Calamint, and Worm-wood, are as perfectly distinguishable by their Smell and Taste, as the Plants from whence they were drawn; whilst the Plants themselves, from whence all the Oil is extracted, cannot afterwards be well distinguished from each other. These Oils long retain their Virtues, without growing rancid; and, therefore, with respect to all these Properties, the Chymists have justly termed them *essential Oils*.

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1. These Oils have a certain sharp heating inflammatory Property, so as to stimulate the nervous Fibres, attenuate Viscidities, prove grateful to the Smell and Taste, and quicken the Spirits: Their Acrimony appears from hence; that, if applied to the naked Membranes and Nerves in Wounds, they give an acute Pain. We learn they are heating, because, when taken inwardly, they excite a greater Heat, than almost any other simple Body; so that a free Use of them will bring on burning Fevers, keep them up, and by an increased and continued Use; raise them even to the utmost Degree of Heat and Violence. When externally applied to the Skin of an healthy Person, so that they cannot be throw off; they cause an Heat, Burning, Pain, Redness, Shining, Pulsation, and Blisters; and, if their Action be great, even Gangrenes: Whence it is manifest how high an inflammatory Power they have, when imprudently given internally, where, coming in Contact with the Viscera and Membranes, they may produce the like Inflammations; and hence, being actuated in the Body, by the Force of Circulation, they effectually stimulate the Nerves, and may thus excellently attenuate, and intimately divide, those Viscidities, which, arising from mere Inactivity, require to be resolved by a brisker Motion. Again, the odoriferous Kind, by their Sweetness and pleasant Taste, prove highly acceptable and refreshing, in Faintness and Torpidity; and all these Effects they have not by means of their oily Tenacity, but of the subtle Spirits, which are lodged in this Oil, and contain the proper Taste and Smell of the Plant: These Oils, therefore, by a prudent medicinal Use, afford the noblest Remedies against all those Distempers, wherein the animal, natural, and vital Spirits are wanting, or torpid; for Instance, in Persons afflicted with cold watry Disorders, a simple Leucophlegmatia, or mucous Serosity, proceeding from mere Inactivity, without any inflammatory Obstruction. Hence, also, they become serviceable in Winter Fevers, that are perfectly intermittent, and attended with cold Fits; being given whilst the Fever is off, and principally before the cold Fit is expected. A moderate Use of them is, also, serviceable to aged Persons, and to the Hypochondriacal, whose Blood is sluggish, and unfit for affording of Spirits; whence such Persons become indolent, forgetful, heavy, lethargic, and subject to weep like Children. In like manner they are serviceable to hysterical Women; but where hysterical Disorders proceed from a Plethora, essential Oils, though in other Cases so excellent, prove very prejudicial; and the like is to be understood of apoplectic Cases: For though these Oils are serviceable where the Patient is old, and lethargic through a Want of Spirits and Activity; yet they prove almost mortal, when the Disorder proceeds from Blood extravasated within the Skull, or from an inflammatory Fulness, or Plethora: Whence such Persons have been often hurt by the Use of apoplectic Balsams, prepared from these Oils, tho' almost every-where indiscriminately commended. They are in no Distempers more deservedly praised, than against Flatulencies in the Stomach, Gripings, and the Colic; but here, also, they must be prudently used, because these Disorders may arise from Inflammation, Spasms occasioned by Fulness, and the like Causes, wherein such Oils are hurtful; though, on the other hand, excellent, when those Disorders proceed from mere Coldness, languid Circulation, and a cold viscid Serosity blocking up the Intestines.
2. With regard to the chymical Use of our present Process, it is hence manifest, (1.) That aromatic Plants contain an Oil, which is volatile with the Heat of boiling Water: (2.) That this Oil principally contains the presiding Spirit, which rises together with it; and, after Distillation, remains for several Years therein, provided the containing Vessel be close stopped: (3.) That Plants contain this Oil only in one certain Quantity, which being drawn out, there remains no more behind: (4.) But if the boiling Water, in this Distillation, be saturated with as much Salt as it can dissolve, it will then be hotter than mere Water; whence, by means of a large Quantity of Salt, more essential Oil may be extracted from a Vegetable, than by boiling Water alone, without it; but it is erroneous to expect, by this means, more of the Spirit, wherein the Virtue of the Oil resides; for the native Spirit is separable by the boiling Heat of mere Water; so that the Promises made upon this Head are vain. (5.) Hence we learn, also, that these Oils are more volatile, than the saline Matter, which, with a stronger Fire, rises in a volatile, oily, acid, or alkaline Salt, or that which by Calcination is changed into



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into fixed Alkali. (6.) That the proper Virtues of every Plant are found more in these Oils, than in other of their simple Parts; tho' this always with respect to the Spirit wrapped up in the Oil: For neither the Water, the fixed Oil, the saponaceous Part, nor the Salt of the Plant, contain this peculiar and proper Virtue; as, by separately examining all the rest, no one could discover from what Plant they proceed; whilst the Oil alone, by its Smell and Taste, never fails to indicate the Plant it was drawn from; or, if these Oils should correspond to two different Subjects, it is then usual to give them the same Name, as in the Oil of Roses, and *Lignum Rhodium*, or Rose-wood, So, also, the great Agreement betwixt the Oil of *Cassia Lignea*, and Cinnamon, has occasioned the true Cinnamon-tree to be called *Cassia Lignea*, and the other, *Cassia Fistula*. (7.) Lastly, we hence learn what an excellent Part Plants may lose by boiling.

## THE DISTILLED OILS FROM DRY LEAVES, BY THE ALEM-BIC, SHEWN IN MINT.

1. We proceed to shew the same Experiment upon a dry Plant. Take Mint, therefore, that was gathered in a proper Season, dried in the Shade, and kept for six Months; digest and distil it with its own distilled Water, as in the preceding Process, observing only not to fill the Still above half, with the dry Leaves; because, being thus shrunk, they will swell very much with the Water poured upon them, and so easily burn, or boil over. By this means there will rise, thro' the whole Time of Distillation, a considerable Quantity of Oil, rich in Taste, Smell, and Virtue, and floating upon the distill'd Water.
2. If all the Liquor be expressed from the Remainder, and pour'd upon a fresh Parcel of Mint, and all the former distill'd Water be also returned after the Oil is first separated from it, with the Addition, also, of as much more distilled Mint-water, as is necessary, and the Whole be digested and distilled as before, this second Operation will afford a much larger Quantity of Oil; and, if several times repeated, the more Oil will each time be acquired; for, by numerous Cohobations, the Water will become extremely rich, and full of Oil. It is manifest, that the distilled Waters here retain the peculiar Virtues of the Plants, as is sufficiently shewn under the Article AQUA.

## THE DISTILLED OIL OF FLOWERS; BY AN EXAMPLE IN LAVENDER.

1. The most odoriferous Part of Plants either resides entirely, or is found in greatest Perfection, in their Flowers; but, as it is here sweetest, so it is most perishable, by reason of the Delicacy, unstable and falling Nature of the Flowers; tho', indeed, there are some, as the kinds of Lavender, which long preserve their Fragrance: But the Method of obtaining their Oil is nearly the same in all; for which Purpose they are to be gathered at that time they are sweetest, which generally happens when their Petals begin to open; let them be gathered whole, with the Morning-dew upon them, and immediately be committed to the Still, whereof they may possess Two-thirds; a sufficient Quantity of the distilled Water of the same Flower being poured thereon, and as much Oil of Vitriol as may give a grateful Acidity to the Whole: Then, immediately, distil as in the preceding Process; by which means some Oil will appear floating in the Water, which is to be collected, and kept apart. Let the Decoction be expressed from the Flowers remaining in the Still, and be returned upon a fresh Parcel along with the former distilled Water, and a little more Oil of Vitriol; and thus, by repeating the Operation, a much larger Quantity of Oil will be now obtained. Repeat the Process three times, or more; for the oftener the Work is repeated, the more Oil will each time be obtained; the Decoction, each time, growing thicker, and the cohobated Water stronger, or fuller of Oil, which is to be carefully separated after every Distillation: And thus the distilled Waters, also, so often returned, at length become extremely fragrant, like the Oils themselves, and rich in Medicinal Virtue.

2. As this Oil is highly odoriferous, and therefore exceeding valuable, so it can only be obtained in a very small Quantity, whence Chymists have used great Endeavours to find a Way of increasing it, without impairing its Virtue; and at length observed, that if the Flowers were digested in a close Vessel, for fifteen Days, or more, with the Addition of so much Oil of Vitriol as might preserve them from Putrefaction, they would afford a third Part more of an excellent Oil; as we see by an Example in the precious Oil of Roses, given in the History of the Royal Academy of Sciences at *Paris*. Some of the principal Flowers that are fit for this Purpose, are the following: The Flowers of Chamomile, Citron, Clove, Hyacinth, Gilly-flowers, Jessamy, Lavender, white Lilies, Lilies of the Valley, Lemon, Maudlin Tansy, Orange, *Philadelphus Athenaei*, Roses, and Tansy.

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These Oils, for their excellent Fragrance, are valued by great Personages, and sold at an high Price; whence it is worth while to study them.

## THE DISTILLED OILS OF SEEDS; BY AN EXAMPLE IN FENNEL.

It has been long observed, that the Oil of Plants is plentifully lodged in the Cotyledons, or double Placenta of their Seeds, whence their Oils have been long sought, especially in the aromatic Kinds; and it has appeared, that the more sharp, hot, and odorous they were, the more copious and excellent Oil they afforded: Yet Nature does not constantly follow this Rule alone; for tho' sometimes the Seed contains this aromatic Oil, as in Anise, Cumin, &c. yet in others the Oil is not found in the Seed, but in different Parts: Thus the curious Oil of the Rose is only found in its Flower, and none at all in the Seed, or Fruit. The Orange-tree contains an excellent odoriferous Oil in its Flower, the Rind of its Fruit, and its Leaves; but not the least Sign of any in its Seed: The Seed, indeed, leaves an Oil of its own, but nothing like that excellent one we speak of. Thus, the Seed of the Cinnamon-tree affords none of that admirable Oil which so richly abounds in its Bark, Leaves, and Wood. Hence no general Rule can with Certainty be laid down, but recourse must be had to particular Experiments, for sure Information. The best Seeds, therefore, for this Purpose, we judge to be those of Ammi, Amomum, Angelica, Anise, Bay, Cardamom both the greater and lesser, Caraway, Chervil, Coriander, Cubeb, Cumin, Dill, Fennel, Garlick, Hedge-mustard, Sweet Marjoram, Masterwort, Juniper, Lovage, Mustard, Onions, Origanum, Pepper, Rocket, Rue, Smallage, Spignel, Scurvy-grass, Tansy, and Zedoary.

These Seeds are to be gathered when perfectly ripe, and then to be dried for three Weeks, in an open airy Place, and afterwards digested in a close Vessel, with hot and salted Water, for three Days; let them afterwards be distilled in the same manner as was directed of Waters, only with a stronger Fire; otherwise the Oil will not ascend so well: And here, again, Salt Water being used instead of common, the Oil will be raised the better, on account of the greater Heat of the Liquor, and so become purer.

Some of these Seeds contain so copious an Oil, that, rising collectedly, and so running into the Worm, it is there suddenly cooled by the Water of the Worm-tub; and thus coagulates into a solid Mass, which blocks up the whole Cavity in one cold Part; so that no more Liquor being able to descend, the Vapour of the boiling Water and Oil, with a violent Force, throws off the Head of the Still, which might prove dangerous to the Operator. It is, therefore, proper to see, that the Worm here employed be sufficiently wide, and not kept too cool; but when the Water, and the Oil, are observed thus to stop their Running, let the Head of the Still be immediately taken off with Care, and boiling Water pour'd into the Worm, in order to dissolve the Oil, and drive it out, after which the Distillation may again proceed as before: The Seeds disposed to afford this coagulating Oil are principally those of Anise, Bay, Cardamom, Caraway, Fennel, and Zedoary; the Oils whereof somewhat resemble Camphire, which melts with the Heat of Distillation, and immediately grows solid in the Cold; though it still continues a pure Oil, that in Distillation generally blocks up the Vessels. And, in the hottest Countries, aromatic Plants are often so far matured, that their Oils thus change to Camphire.

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Hence, again, we learn, that a copious Oil is lodged in the Lobes of Seeds, and proves rich in the peculiar Spirit of the Plant, being here safely treasured up for long preserving the tender Embryo, afterwards to shoot out in its proper Season. Hence, also, we see that the vital Principle may be long preserved by such a Balsam, which seems necessary to prevent its being destroyed by the Winter's Cold, or lest unseasonable Warmth, or Moisture, should cause it to shoot before the Time, and thus expose it to be easily killed; and hence this Oil is principally found in the Seeds and Roots of Vegetables. But as there are many Seeds, whose distilled Oil has no remarkable Smell or Taste, whilst residing in the Seed, we are hence informed, that the Spirits of many Vegetables escape the Cognizance of our Senses, whilst yet they actually distinguish the peculiar Properties of Plants from each other; whence we are taught to attribute somewhat considerable, but not too much, to the Sagacity of our Senses. Perhaps, the more volatile the spirituous Principle is in the Oil of Seeds, and of the sharper Taste, the less Time such Seeds will retain their growing Faculty; and, on the other hand, the less

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active that spiritual Principle is, the longer they will remain fit to propagate their Species. Certainly the fragrant aromatic Seeds, which have an exceeding pungent Taste, soon become effete and barren, as we see in the balsamic umbelliferous Kind, and the most odoriferous Seeds of the *Indies*, which commonly prove sterile with us in *Europe*; such as Cardamom, Cubeb, Zedoary, and Ginger; whilst, on the other hand, the Seeds of Cassia, the Humble Plant, Sena, and Tamarinds, long remain perfect: And the same thing is found in the Grain Kind, which will long preserve their Embryos fit for growing. And here it is highly remarkable, that this Oil should continue so very long unhurt in dry Seeds, under the Form of Oil, so as by chymical Means to be drawn from thence in full Virtue; and yet as soon as these Seeds begin to swell and sprout with warm Water, they should immediately begin to lose of their Oil, and become disposed to produce Spirit: Whence it should seem possible, that this Oil may be so changed by the Moisture of the fertilizing Earth, the Action of the warm Atmosphere, and the saponaceous Virtue of the Juices, both of the Earth and Seed, as to be dissolved, attenuated, and render'd miscible with Water, so as to be driven into the tender Vessels of the Embryo, through the Canals of the Radicula, planted in the Lobes or Placenta, and thus feed the tender Plant with these Spirits; and, by communicating its own particular Nature to the nutrimental Juices, impregnate the Whole, and produce the Species; for Seeds once moistened to such a Degree, as to give Signs of vital Motion, cannot afterwards be well preserved fit for Propagation.

For the distilled Oil of *Indian Cloves*, see CARYOPHYLLUS.

## THE DISTILLED OIL OF SASSAFRAS-WOOD.

(1.) The lighter odoriferous oily Woods, cut in the Winter, and brought into Shavings whilst sound and perfect, being strongly distilled with twenty times their own Quantity of Water, afford a milky Liquor, and an Oil, which from the Sassafras of *America*, is almost pellucid, and sinks to the Bottom of Water, tho' the Wood that affords it is considerably soft, light, and almost spongy. Let the Distillation be continued so long as any Oil comes over, or the Water continues richly milky, and an austere and acid Decoction will remain at the Bottom of the Still. (2.) If a fresh Quantity of the same Shavings be distilled along with the former Decoction, and the Water that first came over, more Oil will now be obtained, and more again at a third or fourth Repetition, or Cohobation. (3.) And by this means we obtain the Oil from all the Woods that afford it, with Ease; such as Fir, Pine, and Sassafras; the two former whereof afford lighter Oils, that float in Water; but Sassafras, an heavy one, that sinks therein. (4.) But the hard and ponderous Woods must be thinner shaved, and long digested with Salt and Water, before they are distilled; for, by this means, these, also, will afford their Oil: Of this kind are the *Arbor Vitæ*, Benjamin, Box, Cedar, Citron, Guaiacum, Juniper, Lemon, Orange, Rhodium, Savine, Snake-wood, Storax, and other Balsam-trees; as those which afford the Balsams of Capiivi, Peru, Tolu, and Gum Elemi; for the longer these Woods are digested in close Vessels with Salt and Water, the easier they afford their essential Oils, by Distillation. (5.) Those Trees are fittest for this Process, which are fat, and yield Rosin, Balsam, Gum, or Pitch, especially those which are both ponderous and solid; but those which are light, spongy, and grow in watery Places, as the Alder, the Elder, the Lime, the Poplar, the Willow, and the like, are unfit for this Operation, as scarce affording any essential Oil. (6.) The Trees, felled at the Time when their Juices are in their strongest Motion, afford less Oil, and not so good; but those cut down in the midst of a frosty Winter, afford a larger Quantity, and a better Oil. The Wood of young Trees, whilst in the Vigour of their Growth, afford less than those which are old, and past their Growth. The Evergreens afford a larger Quantity, and sharper Oil, than those Trees which shed their Leaves: Whence the Reason is manifest, why ponderous Woods of a strong Texture are required in Building.

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Hence we may understand, that the Ponderosity of Woods is principally owing to the ponderous compact Oil, which closely binds the other Principles together, tho' we do not mean their essential Oil alone, but principally that fixed Kind remaining after Distillation. Of this we have Examples in Cedar, Guaiacum, and Juniper-wood. And upon the same Cause depends their Durability; for the most lasting Woods are always the most oily, as appears in Box, Cedar, Oak, and Olive. Extreme Hardness also depends upon the same; for spongy soft Woods hold little Oil; but Box, Guaiacum, Ironwood, Olive and Snakewood, abound therewith. And hence we understand the Difference of

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Balsam, Turpentine, Rosin, and Pitch, as being owing to a longer or shorter, a greater or a less insipidating Heat of the Sun. Lastly; We hence understand the Nature of Rotteness in Timber, proceeding from the Worm which feeds upon the subtle Oil contained in the particular Cells thereof; which Oil being consumed, the Wood afterwards falls into a kind of Dust or Ashes; or else by lying exposed to an Air sometimes hot, sometimes moist, sometimes dry, and sometimes cold, the Oil is at length consumed, and only a friable Earth left behind.

For the distilled Oil of Cinnamon; see CINNAMOMUM.

## OILS DISTILLED PER DESCENSUM, SHEWN IN CLOVES.

Human Industry first discovered; that Plants rich in Oil, being agitated by the Fire, sweat out their unctuous Matter, so that it might be collected; and hence was discovered the Art of procuring Pitch, by the burning of fat Trees. After this, the more unctuous Seeds, being bruised, and exposed to a gentle Fire, thus suffered an Oil to run from them, as in the Case of Almonds. At length, by the same Methods, the aromatic Tribe of Plants were, in particular, made to sweat out their Oil; but the Oil, thus procured, differs entirely in Smell, Taste, and Virtues, from that which is thence expressed as above: But we are to give an Example of the Thing.

Take, therefore, the best Cloves, bruised to an unctuous Pulp, and spread it a quarter of an Inch thick upon a close Linen, stretched, and tied over the wide Mouth of a cylindrical Glass Vessel, so that it cannot fall into the Cavity thereof: And the deeper this Glass, the better it is fitted for the Purpose; because a spacious Cavity serves best to cool and condense the oily Vapour. Then take a Dish made of Iron-plate, so hollowed with a flat and round Rim, that this Rim may exactly rest upon that of the cylindrical Glass, whilst the protuberant Part of the Dish falls exactly within the Mouth of the Glass, the Depth of the Dish's Cavity in the Middle, the third of an Inch. Let this Dish be a little squeezed upon the Cloves, so as to press them with its convex Part, and the Linen that supports them, a little within the Mouth of the Glass: When this is done, fill the Cavity of the Dish with clean Ashes, and place a few live Coals at the Top, the Heat whereof, passing through the Ashes, will liquefy the Oil, and agitate the native Water of the Cloves, whereby they will both be resolved into Vapour; which, coming into the Cavity below, will be condensed upon the Sides of the cold Glass, and fall in Drops to the Bottom, in the Form of a sharp Water and Oil. The Fire being thus prudently continued, nearly all the Oil will successively be driven out; and the Work is then finished, when no more is made to descend by that Degree of Heat; but beware of putting on too much Fire, because this would render the Produce empyreumatic. On the other hand, if the Heat be too gentle, scarce any thing will be forced out: A Medium is easily obtained, by beginning with a small Heat, and rising by degrees; and thus, by repeating the Operation, any Quantity of Oil may be obtained.

## REMARKS.

This Experiment shews the Nature and Appearance of a proper aromatic Oil: The Oil, so prepared, exactly resembles the distilled essential Kind, both in Taste, Smell, and Virtue, so as scarce, in any respect, to be distinguished from it. It is, indeed, obtained in a less Quantity than by Distillation with Water; but the Remainder may be afterwards employed in Distillation, or to other Purposes, as retaining much of the original Virtue. And this Method is principally of Use, when such an Oil is immediately required, or when we want, to exhibit the Experiment. In other Cases, we rather make Choice of Distillation; but by the present Process we can expeditiously obtain the Oil from the Rinds of Citrons, Lemons, and Oranges, and from Mace, Nutmeg, and other very unctuous Substances. And hence we learn, what Effect this Degree of Fire may have upon Oils, as they are naturally contained in Vegetables, by liquefying and separating them, so as to make them sweat out, almost spontaneously; but, when the Subjects are too dry to afford this Oil commodiously, let them be bruised, then put into a Linen Cloth, and exposed, for some time, to the Vapour of hot Water, that thus they may be opened before they are committed to the Operation; for then they will afford more Water, and more Oil; and that less altered, and with greater Ease. These Oils differ surprisingly from those gained by Expression, as being much more aromatic, when obtained *per Descensum*.

## SCHOLIUM.

This experimental History of Oils obtained by Chymistry from Spices, particularly in the Way of Distillation, contains many extraordinary and useful Particulars, the principal whereof

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we



we will here briefly enumerate, for the Service of Chymistry, Natural Philosophy, and Medicine.

1. The entire aromatic Virtue of Plants is contained in their essential Oil alone; which being perfectly extracted, the remaining Substance retains not the least Sign thereof.

2. This essential Oil, again, contains the exceeding subtle, volatile, minute, sharp, and scarce ponderable Spirit, which gives the whole Virtue to the Oil, and which, when separated therefrom, leaves nothing particular in the Oil: Therefore, in these Oils, the Sulphur is to be carefully distinguished from the Spirit, or the resinous Part from that which is sharp and fiery. The Spirit easily exhales, but the Sulphur remains sluggish behind, and gradually thickens, sooner in the Air, and slower in a close Vessel; thus becoming, from a liquid Oil, a gross one; then a Balsam; then a more thick and tenacious Substance; and, at last, a brittle Rosin; from all which State it is again recoverable, by Distillation, into a thin liquid Oil. Whence many eminent Authors have thought, that distilled Oils are only liquefied Rosins; and Rosins, again, condensed Oils. Certainly the Sun thus changes Oils in Plants; for the Cedar, the Fir, the Larch, and the Pine, weep, by Incision, a liquid and thin Oil, which, being full of Spirit, is extremely aromatic, as I have often tried to my Surprise; but, when this Oil comes upon the Bark, it begins, with the Heat, gradually to lose of its Spirit, grow thick, and become a Turpentine, not only of an higher Consistence, but less rich in Spirit, than before. Thus Turpentine, when more dried by the farther Action of the Sun, becomes resinous, losing its Spirit more and more, so as at length to prove almost inodorous and insipid. Hence, when it is said, that Rosin, by being distilled with Water, again resolves into an Oil, we must understand it of the sulphureous Part alone, but not of both the sulphureous and the spirituous; for the Spirit does not return, nor is regenerated; but only the Fluidity of Oil returns. So, also, the aromatic odoriferous Tears of Benjamin, Lacca, Mastich, Olibanum, and Sarcocol, lose much of the Spirit at first contained in their fluid Oils; whence the more liquid and recent these are employed, their medicinal Effects are always the greater; as, on the other hand, they grow perfectly effete with Age; and when, at length, all their Spirit is gone, the remaining oily Matters are scarce longer distinguishable from one another. Hence it seems probable, that the Bodies of essential Oils are greatly alike; and that the Spirits alone make the Difference between them. Whether this Spirit differs with the specific Gravity of the Oils, I leave to farther Inquiry. It must, however, be carefully observed, that a sharp Taste and Virtue may depend upon the Salt of a Plant, tho', in this Case, the peculiar Characteristic is not owing thereto, but to the Spirit of the Oil. Vegetables, therefore, lose all that is peculiar to them, when their Oil is extracted.

3. The more pungent Odour Vegetables have, the more fiery their Spirit generally proves; and the more biting, when chewed in the Mouth, the sharper the Spirit of their distilled Oil. So, also, they afford the thicker, stronger, and deeper-coloured Oils, when they are ripest, and moderately dried; but, when distilled whilst moist and recent, they afford less of a thinner, more transparent, less heating, but more odoriferous Oil: Whence, possibly, the Spirit itself may arrive gradually at its greatest Perfection in the Plant. This is certain, that the Smell and Taste, which proceed from the Spirit, are not the strongest, when the Plant is young, nor till it has arrived at complete Maturity. We must also observe, that, in certain Plants, there seems to be more Spirit contained in less Oil than in others, and *vice versa*. When a Pound of Nutmegs afford an Ounce of Oil, and twenty-five Pounds of Calamus Aromaticus afford only an Ounce; this shews that there is not here the same Proportion between the Quantity of the Oil and Spirit. There, also, predominates a certain peculiar Acrimony in the Spirits that distinguish Oils; this Acrimony, in the Oil, or Cinnamon, burns, like Fire, any Part of the Body it touches, and can scarce be washed off under a long time; and there is an exceedingly pungent Spirit in the Oils of Savory and Thyme. Hence, therefore, we find there is a strange Disposition in these Spirits; which, tho', upon exhaling from the Oil, scarce diminish the Weight thereof, yet deprive it of its Virtue, and leave it ungrateful, thick, terribinaceous, and at length resinous. I have search'd after the Weight of these Spirits, but could not discover it.

4. Essential Oils are found of different Colour, according to the different Plants from whence they are distilled: The Oil of Mint is brown, of Lavender yellowish, of Cinnamon Gold-coloured, of Wormwood black-green, of Chamomile and Yarrow blue, of Aniseed almost white, and of Camphire quite white. Whether this Difference depends upon the Difference of the Spirits, or the Oil, or some other third Principle, that in some Cases rises in Distillation, is not certain, and deserves to be inquired into.

5. These Oils are sometimes extremely liquid, almost spirituous, or scarce having any Tenacity, as we see in the essential

Oil distilled from the Rind of China Oranges, this being one of the most fluid Liquors; and of this kind is the Oil of Lavender, and even the ponderous Oil of Sassafras-wood. On the contrary, the Oils of some other Plants are thick; as that of Fennel and Roses, that of Aniseed is still thicker, and the thickest of all is Camphire: But the thick dissolve with a gentle Heat, the thicker with one a little greater, and the thickest with a moderate one. Whence this proceeds, should be farther examined.

6. Again: These Oils differ remarkably in their specific Gravities, some being considerably heavier than Water; as the Oils of Cinnamon, Cloves, Sassafras, Nutmeg, and perhaps of other aromatic Plants that grow within the Tropics, where the violent Heat of the Sun might otherwise prove scorching to them; for these Oils, in Distillation, require a greater Fire to raise them, and a shallower Still, only one fourth whereof remains empty. Other essential Oils are extremely light; as that of Lavender: And yet this Excess of Weight does not make the Oils thicker; for the Oil of Sassafras, as we just now observed, is at once very thin and heavy, whilst Camphire is, at the same time, extremely thick and light, so that this must have some other Cause. The Oil of Aniseed will often remain floating in Water, and that distilled from Juniper-berries sometimes subside.

7. These essential aromatic Oils have an almost inimitable Virtue, entirely depending upon the Spirit so often mentioned, which is sharp, inflammatory, grateful, refreshing, heating, attenuating, and stimulating to the animal Spirits, and nervous Fibres; and by these Properties the Oils prove serviceable in cold, aged, watry, and phlegmatic Constitutions; and, again, in cold Intermittents, moist and cold hypochondriacal and hysterical Cases, or other Diseases proceeding from cold, acid, or aqueous Flatulencies in the Intestines; and, when prudently used in these Cases, they prove generally powerful and safe Medicines; but, when indiscreetly applied in Distempers attended with violent Heat, Motion, or Inflammation, they prove poisonous. The Chymists have prudently observ'd, that these Oils act by means of their Spirits, which, as lodged in the Oil, come to be apply'd to the Parts of the Body, so as there to produce their proper Actions, which would otherwise easily be lost through their extreme Volatility; and, when both the Oil and the Spirit act together, the Effect is more gentle, but more lasting. These Spirits, therefore, have, and communicate to the Oil, a certain Acrimony, which gives the Sensation of Fire to the Tongue, and presently occasions Pain; and the like Effect it shews, when apply'd to the naked Nerves: When apply'd to the external Skin, they soon occasion the whole Series of an Inflammation, and end in a gangrenous Eschar. If applied to the Lips, or the internal Parts of the Nose or Palate, where the Nerves lie bare, it occasions the same, with greater Violence; and presently brings on dangerous Inflammations. Whence we easily see what Effects they may produce upon the Mouth, Throat, Stomach, and Intestines, when imprudently exhibited. Hence these Oils may justly be called *Inflammatory*; tho' we before observed, there is no better Remedy for immediately raising the Spirits by their grateful and extraordinary Virtue; which can scarce be explained, for want of general Principles, otherwise than by direct Experiment. They have not only this Refreshing, but, also, an heating Virtue; for, if externally apply'd, or internally taken, they immediately begin to heat the Parts of the Body, and presently increase this Heat, thus once begun; but the colder and more languid the Body, the less they heat it, and *vice versa*; so that, when rubbed upon a dead Carcase, they produce no Heat at all: Whence it is highly dangerous to give them in a burning Fever. They, also, increase the Motion of the Nerves by Irritation, propelling the Spirits, and perhaps agreeably warming to them both; and whilst they perform all this, they attenuate and dissolve Viscidities, so far as can be done, by increasing the Motion of Circulation. But we have already enumerated nearly all the Virtues, above, which these Oils have in common, excepting that they differ as to their different Degrees of Acrimony. They have, however, besides these, other Virtues no less considerable, and peculiar to each, whereof we have sufficiently spoken under the Article AQUA. Thus the Oil of the Arbor Vitæ, and of Savine, are powerful Emmenagogues, where the Stoppage of the menstrual Discharge arises from a languid Circulation. The essential Oil of Rue is of Service in the Epilepsy, from a cold relaxed State of the Nerves; and, likewise, in hysterical Disorders, from a cold Cause: That of Juniper-berries, in the cold Scurvy, and the Pains and Heaviness thence proceeding; and, also, in nephritic Complaints, from cold Obstructions: That of Mint, in an almost paralytic Weakness of the Stomach: That of Lavender, in the Palsy, Vertigo, Lethargy, and other cold Disorders of the Head: The fragrant un-inflammatory Oil of Roses is a noble Reviver of the languid Spirits: That of Cinnamon, very advantageous in a great Paucity



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Paucity of Spirits, without Inflammation, either during the Periods of Pregnancy, Delivery, or immediately afterwards, if, at the same time, there be no Rupture of the Vessels: Those of Wormwood, *Carduus Benedictus*, the Lesser Centaury, Chamomile, and Tansey, are useful against Worms; for which Purpose they may be formed into Pills with the Crum of Bread, and given in a sufficient Dose, upon an empty Stomach, the Patient refraining from all kind of Aliment, for two Hours afterwards: Those of Baum and Lemon-peel, in Palpitations of the Heart, from cold phlegmatic Humours: And those of Marjoram, Rosemary, and Sage, in Obstructions, and mucous Discharges, of the Uterus, from a cold Cause.

8. If these Oils be strongly ground, for a considerable time, with thrice their own Weight of pure and dry Sea-salt, so as to divide them well, and then again distilled with Water, they become clean, pure, and limpid, or freed from their mucilaginous or gummy Part; and fitter for keeping, if put up into Glass Vessels that are not too alkaline, and having close Necks well fitted with ground Glass Stoppels, and set in a dry cold Place; but they lose of their Quantity by this Rectification; much gross Matter remaining behind in the Still, unable to ascend by reason of its Tenacity. Their Virtues, also, are lessened, which depend upon their Spirits, because these remain in the Water used in the Distillation, and are, also, dissipated in the Water which comes over. This Mr. *Homberg* shews by a laborious and instructive, tho' dear Experiment; for, upon distilling such an Oil with fresh Water every time, six-and-twenty times over, he at length obtained only a fourth Part thereof; the other Three-fourths becoming an insipid and tenacious Substance, whilst the Water, four-and-twenty times cohobated with the Oil, was rendered exceeding sharp, aromatic, saline, or spirituous.

9. When these pure Oils are without Addition, distilled in a Glass Retort, with a Fire carefully and gradually increased, they always exhale some Water; and afterwards become more clear, liquid, penetrating, and light; leaving at the Bottom of the Retort, after the Distillation is performed, a strong Heat, a black, fixed, spongy, terrestrial Matter: And, if the Operation be thus several times repeated, the greatest Part of the Oil will be converted into what the Chymists call *Caput Mortuum*. The excellent Mr. *Boyle*, by this means, reduced a Pound of essential Oil almost wholly to Earth.

10. They who have distilled these Oils from pure Chalk in clean Vessels, have found that by cohobating five Ounces of Oil eight times, upon fifteen Ounces of Chalk, it afforded only two Ounces and one Dram of Oil, two Drams and forty-five Grains of Salt, and half an Ounce of a strongly saline Water, containing the volatile Salt of the Oil; according to the Observation of Mr. *Bourdelin*.

11. Again, these Oils distilled from Lime slaked in the Air, and afterwards made exceeding dry, are so changed, that a Pound of Oil being six times distilled, in the way of Cohobation upon fresh Quantities of Lime, with an extreme Degree of Fire, there came over fifteen Ounces and an half of Water, and one Ounce of Oil, according to the Observation of Mr. *Homberg*. Hence these Oils are found to consist principally of elementary Water and Earth, a little Oil, Spirit, and Salt; and therefore grew from the Union of those different Principles by the Action of the Fire: Whence Oil is not a simple elementary Body, but a Compound of several others. But whether this be really the Case, or whether Experiments may shew, that these Oils are rather transmutable, I do not take upon me to determine.

12. This may be said with greater Certainty, that the more excellent of these Oils, being dissolved in highly rectified Spirit of Wine, digested and distilled with a gentle Fire of one hundred Degrees, give out their native Spirit to the Spirit of Wine, leaving a tenacious oily Matter behind; which, being again treated in the same manner with fresh Spirit of Wine, affords more; and thus at last remains an indolent, scentless, insipid, thick, and tenacious Body of Oil, perfectly deprived of all its Spirit. And, if even pure Water be long shook with these Oils, it takes to itself their Spirit, becomes rich therewith, and thus robs the Oil of its Virtue; so that, if the Operation be often repeated, it at length leaves the like indolent Remainder as the Spirit of Wine. And hence we are furnished with excellent Preparations, and learn, that these Oils are separable into Spirit and Oil, a little Salt, much Water, and much Earth; at least, that these are producible from them by Distillation. But nothing here seems stranger, than that Water should remain so tenaciously mixed with these Oils, as not to be separated from them by Distillation twenty times repeated.

13. Hence, again, it is confirmed to us by this whole History, (1.) That the peculiar Taste and Odour of Plants wholly reside in their native Spirit. (2.) That the Taste and Odour of distilled aromatic Waters is solely owing to this Spirit, as peculiar to each Plant. (3.) That essential Oils, also, have their

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respective Characteristics from these Spirits alone. (4.) That the volatile Oil of Plants principally serves for detaining these Spirits, and the fixed Oil for connecting the solid Parts together; whence the Difference of these two Oils is very great. (5.) That both the expressed and distilled Oils, before explained, are tolerably natural in the Plants themselves. And, (6.) That the Difference of Oils is principally owing to their Spirits. *Boerhaave's Chymistry*.

Oils drawn by Expression are from Nuts and Seeds; and those for internal Use are to be drawn cold, because the Fire, or any Warmth, which facilitates the oily Parts to flow out in greater Quantities, is supposed to communicate somewhat to such Oils, that damages their Virtues, consider'd as Softeners; and likewise forces out somewhat that gives them much fouler Scents, than when drawn cold; though it is probable, that there may be Purposes, for which some of these Oils are prescribed, which might be better answer'd by the common way of Expression with Warmth; as where the *Oleum Lini* is given for a Detergent, which it often is, the Property making it so is certainly more increas'd, by being drawn by Heat; and all the Objection in this Case is, that it is not so cleanly upon the Palate.

The common way of prescribing these Oils internally, hath been alone, or in Lincluses; but a much neater way is in Emulsion. But although the College direct these to be drawn from many Materials, yet there are none of them in Use, besides that of sweet Almonds and Linseeds internally, and the *Oleum Macis*, *Laurinum*, and *Palmarum*, externally: Tho' the last is not taken notice of in the Dispensatories, but brought much into Practice by those Travellers who have learned its Use in the Countries where it is made.

The next Class of Oils are such as are made by Infusion, or Decoction, wherein some Herb or Flower hath its Virtues drawn out by the Oil. Of those in Use are the *Oleum Rosaceum*, *Chamæmelinum*, *Hyperici*, *Liliorum*, and *Sambucinum*; and these require somewhat different in their making, on account of some different Qualities in the Things themselves; as the scented Flowers, particularly the Roses, do better by long Insolation, only in such a Warmth as the Sun will give; because much boiling would exhale their more fragrant Parts. But Oils impregnated with green Herbs, as Chamomile, and Elder, require long boiling, before they receive that green Colour which is desired in them. It is to be observ'd concerning these things which require boiling, that no Oils will bear such Management without turning black, any longer than there remains some aqueous Humidity, which is herein supply'd from the Juice of the Herbs: When, therefore, they grow crisp for want of farther Moisture, the Process is finish'd.

There are, likewise, directed, in the Dispensatory, many compound Oils, to be made, after the same manner, by Infusion or Decoction; and the like Rules are to be observ'd in them, as in the simple ones. *Quincy's Pract. Pharm.*

DIRECTIONS for preparing OILS from the College Dispensatory.

## OLEUM ABSINTHII. Oil of Wormwood.

Take of Wormwood, one Pound; and as much Spring-water as will stand above it three or four Fingers-breadth; distil in a large Alembic, with its Refrigeratory, or in a Copper Body, with its Head and Neck winding in a spiral Form, through a Vessel of Water. Let the Oil which comes out with the Water be separated by a Glass Funnel, called the *Separator*; and keep the Water so cleared of its Oil for another Distillation.

After the same manner are procured the Oils of Marjoram, Mint, Origan, Pennyroyal, Rosemary, Rue, Savine, Sage, Savory, Thyme, &c.

After the same manner is prepar'd the Oil of Damask Roses, of Chamomile and Lavender-flowers; as indeed from all other warm Herbs and Flowers.

From the same Procedure, also, are procured the Oils from the dry Peels of Oranges, Citrons, and Lemons: Although Oils may, also, be drawn from the same Peels, while green and succulent, by bruising and distilling with a sufficient Quantity of Water, both in a greater Quantity, and as useful to any medicinal Purposes.

## OLEUM ABSINTHII. OILS.

This is made after the same manner as the Oil of Roses, by a triple Maceration of four Ounces of the Tops of common Wormwood in three Pints of ripe Oil, adding three several times four Ounces of the Juice of Wormwood, and evaporating it again over the Fire, by a slow Boiling.

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**OLEUM AMYGDALARUM AMARARUM.** *Oil of bitter Almonds.*

It is made after the same manner as that of the sweet Almonds, unless that there is no Occasion for blanching; nor can there so much Inconveniency arise from any Heat made use of to facilitate their Pressure. After the same manner is drawn the Oil of Hasel-nuts, Ben, Acorns, and of Nutmegs, from the Nut; as that of Mace, from the second reticular Coat of the same Fruit.

**OLEUM AMYGDALARUM DULCIUM.** *Oil of sweet Almonds.*

Take of sweet Almonds fresh and dry, as many as you please; break and throw away the hard Shells, and blanch the Kernels; then beat them in a Stone Mortar, and by degrees press out the Oil, without any Help of Fire.

**OLEUM ANETHINUM.** See ANETHUM.

**OLEUM ANTIMONII.** See ANTIMONIUM.

**OLEUM E BACCIS JUNIPERI.** *Oil of Juniper-berries.*

Take two Parts of Juniper-berries; of Sea-salt, one Part: Bruise them together; and, with a sufficient Quantity of Spring-water, distil next Day in the common Vessels.

**OLEUM CARYINUM.**

It is made after the same manner from Walnuts.

**OLEUM DE CASTOREO.** See CASTOR.

**OLEUM DE CASTOREO COMPOSITUM.** See CASTOR.

**OLEUM CERÆ.** *Oil of Wax.*

With yellow Wax, melted one Pound, mix three Pounds of Brick-dust; put them into a Retort, and draw off the Oil in a Sand-heat, and rectify that with new Brick-dust: Or to the Oil just drawn off put double the Quantity of fresh Wax sliced, and again distil with a Retort in a Sand-heat.

After the same manner are distilled Oils from fat Substances; as, also, from Gums and Resins, that cannot be reduced into Powder.

**OLEUM CHAMÆMELINUM.** See CHAMÆMELUM.

**OLEUM CHAMÆMELI CHYMICI.** *Chymical, or Essential Oil of Chamomile.*

This is prepared in the same manner as other chymical, or essential Oils. The Plant affords but a small Quantity of this Oil, as all do which seed little; and is, therefore, dear. It is used principally, as the Oil of Cloves, to correct Purgers; and sometimes, also, it is given as a Carminative, in Boles, a Drop or two to a Dose; and it does often good, by suddenly removing those Flatulencies, which occasion Stitches and Pains of the Side.

**OLEUM CHEIRINUM SEU KEIRINUM.** *Oil of Wall-flowers.*

This is made of the Flowers, and Oil, in the same manner as that of Dill.

**OLEUM CHRYSOMELINUM.**

This is made by the Expression of Apricock-kernels. After which manner, also, is procured Oil from the Kernels of Cherries, Peaches, Pine-nuts, Pistachio-nuts, and Plums; as, also, from the Seeds of Oranges, Hemp, Bastard-saffron, called *Cnicus*, Citrons, Cucumbers, Gourd, Citruls, Dwarf-elder, Henbane, Lettuce, Linseed, Melons, Poppies, Parsley, Horle-radish, Rape, the greater Cataputia, Nicinus, (called *Oleum Cicinum*, *Recinum*, and *de Kerva*) Sesamum, called *Oleum Sesaminum*, Mustard, and Grape-stones.

**OLEUM COSTINUM.** *Oil of Costus.*

Take of the bitter Costus-root, two Ounces; of Cassia-wood, one Ounce; of the Tops of Marjoram, eight Ounces: Grossly bruise them together, and macerate them for two Days, in twelve Ounces of aromatic White-wine; and then, with two Pints of Olive-oil washed with White-wine, let them be boiled in *Balneo Mariae* to the Consumption of the Wine.

**OLEUM EUPHORBII.** See EUPHORIUM.

**OLEUM DE EUPHORBIO COMPOSITUM.** See EUPHORIUM.

**OLEUM EXCESTRENSÆ.** See EXCESTRENSÆ OLEUM.

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**OLEUM SIVE BALSAMUM SIMPLEX HYPERICI.** *Simple Oil, or Balsam of St. John's Wort.*

This is made from the Oil of the Seeds of St. John's-worts, ground in a Mill, and pressed out, with the Addition of the Flowers of St. John's-wort, duly macerated together.

**OLEUM HYPERICI COMPOSITUM.** *Compound Oil of St. John's-wort.*

Take of fragrant White-wine, one Pint; of the Tops of St. John's-wort, with the Flowers and Seeds, four Ounces: Let them be bruised, and macerated in a Glass-vessel well stopped for three Days, in one Pound of Linseed-oil, either in the Sun, or a Bath-heat, and then pressed out: Let a second and third Infusion be made of the Tops of St. John's-wort, after the same manner, without the Wine; and, after the third Infusion is boiled to a Consumption of almost all the Wine, press it out; and add of Turpentine, three Ounces; and Saffron, one Dram; and then give it another gentle Boil, and put it by for Use.

This is very near copy'd after the *Augustan Dispensatory*; for the first of the College hath got a very different Sort, with the Addition of many Ingredients, that are of much more Trouble than Advantage: It is there called *Oleum Hyperici Compositum, seu Balsamum Magistrale Florent.* And it is continued down to the last but one, under the Title of *Oleum Hyperici magis Compositum*; yet it was hardly ever used, being an injudicious Contrivance: It is now justly rejected, and this only retained, which is not so tedious to make, and is well esteemed by our Surgeons, for many Intentions of Consequence; tho' for some Purposes they blame the Turpentine and Saffron, and certainly with good Reason.

**OLEUM IRINUM.** *Oil of Orris.*

Take of *Florentine* Orris-root, three Pounds; four Ounces of white Lily-flowers, with their yellow Heels cut off; fifteen Ounces of fresh Cypress-root; six Ounces of *Elecampane*; three Ounces of Bugloss-root; two Ounces of Cinnamon; Spikenard and Benjamin, one Ounce. Bruise all as they require, and macerate them together, in the Sun, or any warm Place, in fifteen Pounds of old Oil, and four Pints and an half of Spring-water; and, after four Days and an half standing in that manner, boil them in *Balneo Mariae*, to the Consumption of the aqueous Humidity; then strain by a strong Pressure, and put by for Use.

*Mesue* hath given a very concise Prescription of this, with nothing but the Orris-roots and Flowers, which the *Augustan Collection* hath preserved; it is, also, in the first Dispensatory of the College, amongst the simple Oils; but this Prescription, which is, also, there, is from *Nicolaus Alexandrinus*; and, notwithstanding it hath been continued down to the last Edition of the College, it hath yet been very little called for in common Practice, and hardly, I believe, ever made.

**OLEUM LATERTIUM PHILOSOPHORUM.** See LATER.

**OLEUM LAURINUM.** See LAURUS.

**OLEUM LILIORUM.** *Oil of Lilies.*

This is made in the same manner as the Oil of Roses.

**OLEA EX LIONIS AROMATICIS.** *Oils from aromatic Woods.*

As from Sassafras, Rhodium, &c. the Woods must first be rasped, and then distilled.

**OLEUM LUMBRICORUM.** See LUMBRICUS.

**OLEUM MAJORANÆ.** *Oil of Marjoram.*

Take of the Herb a little bruised, four Ounces; of good White-wine, six Ounces; of Oil, one Pound: Let them be mixed together, macerated, and expressed, and fresh Herbs put in to the third time; and then the Wine evaporated by boiling, in a double Vessel.

**OLEUM MAJORANÆ CHYMICUM.** See OLEUM ABSINTHII.

**OLEUM MANDRAGORÆ.** *Oil of Mandrake.*

Take common Oil, two Pounds; of the Juice of Mandrake-apples, or, in their Defect, of its Leaves, four Ounces;



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Ounces; of the Juice of white Henbane, two Ounces; of the Juice of black Poppy-heads, three Ounces; of the Juice of Violets, and young Hemlock, of each one Ounce; of Opium, and Storax, of each half an Ounce. Let the Juices, with the Oil, be exposed to the Sun; and after ten Days standing, boil them leisurely to the Consumption of the Juices; then sprinkle in the Opium finely powder'd; and work in the Storax, first dissolved in a sufficient Quantity of Turpentine.

This is intended against Inflammations, to procure Sleep; and ease Pains of the Head, by washing the Temples and Nostrils with it; but it is rarely prescribed, and hardly to be met with ready made.

OLEUM MENTHÆ CHYMICUM. See OLEUM ABSINTHII.

### OLEUM MYRRHÆ PER DELIQUIMUM.

Boil Eggs till they are hard, split them in the Middle, and take out the Yolks; fill the Cavity with fine Myrrh in Powder; place them upon little Sticks about an Inch and a Quarter long, three or four of them being prick'd into the Egg; set them in a clean Pan in a Cellar, or some such moist Place; and there will drop from them into the Pan a Liquor, which is call'd *Oil of Myrrh*.

This is used only externally to take off Blemishes and Spots on the Skin, and is commended as excellent for such Purposes.

### OLEUM NARDINUM. *Oil of Spikenard.*

Take of Spikenard, three Ounces; of sweet Oil, one Pound and an half; of aromatic Wine, and clear Water, of each two Ounces and an half: Boil them together in a double Vessel, over a gentle Fire, often stirring them, till all the aqueous Humidity is evaporated.

### OLEUM NARDINUM COMPOSITUM. *Compound Oil of Spikenard.*

Take of Spikenard, three Ounces; of fresh Marjoram, two Ounces; of Aloes-wood, Calamus Aromaticus, fresh Elecampane, Cypress, fresh Bay-leaves, of Mace, Camels-hay, and Cardamoms, of each one Ounce and an half. Let all grossly be beat together, and macerated for a whole Day in Water, and generous Wine, of each fourteen Ounces; and Oil of Olives, four Pounds and an half: Then with a slow Heat, and in a double Vessel, evaporate the Wine and Water, so as to have the Oil perfectly by itself.

This is originally ascribed to *Mesue*, and hath hardly been omitted in any Official Dispensatory since his Time: Tho' where here is put Cypress, in the *Augustan*, is Mace, and, in the first Edition of the *London*, *Indian Leaf*: But such are not Alterations of any great Consequence. It is seldom used or made.

### OLEUM NICOTIANÆ. *Oil of Tobacco.*

Take of Tobacco-juice, and common Oil, each equal Parts; and boil them in a Bath-heat, *S. A.*

### OLEUM PAPAVERIS, *Oil of Poppies,*

Is made of the Flowers, Heads, and Leaves of Garden Poppies, and Oil of Olives, in the same manner as the OLEUM ANATHINUM.

### OLEUM ROSACEUM. *Oil of Roses.*

Take of the exungulated red Roses not quite blown, and bruised in a Marble Mortar with a wooden Pestle, four Ounces; of clean Oil of Olives, one Pound: Expose them to the Mid-day Sun, in a Glass Vessel well stopped, for a whole Week, and shake them together every Day; then gently simmer in a Bath-heat, and press out the Oil: Put in fresh Roses, which manage after the same manner; and repeat the Process a third time; and then let them stand together for forty Days; at the Expiration of which, set by the Oil for Use, without pressing out the Roses.

This is much the same as the *Oleum Rosatum Omphacinum* of the *Augustan* Dispensatory; and the first of the College, and the *Oleum Rosatum Compositum* of the *Augustan*; and the *Oleum Rosatum Completum* of the first College Dispensatory, both

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ascribed to *Mesue*, differ from it so little, that they have not been thought worth any Notice here.

### OLEUM RUTACEUM, *Oil of Rue,*

Is made of the bruised Herb, and ripe Oil; as the Oil of Roses.

### OLEUM SABINÆ, *Oil of Savine,*

Is made after the same manner as the foregoing.

### OLEUM SAMBUCINUM, *Oil of Elder;*

Is made from the Flowers and Oil, as the Oil of Roses.

### OLEUM E SEMINIBUS ANETHI. See ANETHUM.

Oils from the Seeds of Anise, Caraway, Cummin, Carrot, Fennel, Parsley, Saxifrage, and others, are prepared like the Oil of Dill.

As, also, the aromatic Oils, from Cinnamon, Cloves, Mace, Nutmegs, Pepper; and others, which for these Purposes are not to be powder'd, but only cut small, and slightly bruised.

### OLEUM SIVE SPIRITUS TEREBINTHINÆ. See TERE-BINTHINA.

### OLEUM SUCCINI. See AMBRA.

### OLEUM SULPHURIS. See SULPHUR.

### OLEUM TARTARI PER DELIQUIMUM. See TARTARUS.

### OLEUM VITRIOLI. See VITRIOLUM.

## OF DISTILLED OILS, AND THE CAUTIONS TO BE OBSERVED IN THEIR DISTILLATION.

'Tis certain, that there is a pinguious and inflammable Principle, by the Chymists called Sulphur, lodged in all mixed Bodies which are easily changed and destroyed; and that this Principle is the Matter of their Inflammability, and the Cause of their principal Virtues. But it is sufficiently evident from various Phenomena, and a great Number of Effects, that this Principle of mixed Bodies is not, in each, of one and the same, but of vastly different and even disagreeing Natures; for, in some Bodies, this sulphureous Principle is of a Nature so highly fixed, and temperate, as to act on the Body without any Heat, as we principally observe in the Oils expressed from Seeds, or in the Fat and Lard of Animals; all which, tho' inflammable, yet, because they are destitute of that volatile and ethereal Principle, do but little heat or alter the Body. But 'tis far otherwise with these Oils, which have a strong Smell and Taste; and which, upon the Application of a somewhat violent Heat, are evaporated into the Air, or distilled; since these, when used in a very small Quantity, exagitate the Body with a violent Heat and Motion. Oils of this kind are principally found in the Vegetable Kingdom; for from Animals, and their Parts, such hot, ethereal, and subtile Oils of a strong Smell, cannot be obtained by Heat alone, nor extracted from them when macerated in Water, by means of an Alembic, or any other chymical Instrument: Of the same kind are those Bodies with which we are supplied from the Mineral Kingdom; for from such bituminous Substances, Amber, for Instance, Jewspitch, and common Sulphur, no subtile Oil can be obtained by a moist Distillation; but these hot, volatile, and odorous Oils, are only to be obtained from the Vegetable Kingdom; tho' all Plants and Vegetables do not yield such an Oil, but only such of them as have a strong and permanent, and not a slight and superficial Smell, as most Flowers have; for 'tis to be laid down as a Maxim in Chymistry, that those Vegetables, which, by Attrition and Heat, diffuse a strong Smell, by a moist Distillation, afford a subtile Oil; so that the more permanent and strong the Smell is, the larger Quantity of Oil is afforded; and the more sweet and fragrant it is, the more grateful and agreeable the Oil, also, is. And the opposite of this holds true.

For this Reason we may, from the penetrating Smell, form an Estimate of the Quality of the distilled Oil, and from that judge of the Degree of Smell. That Maxim of the Chymists is therefore true, That Sulphur is, as it were, the Parent and Principle, from which Smell proceeds; but 'tis to be observed, that many Bodies, which affect the Tongue with a strong and acrid Taste, yet afford little or nothing by Distillation; because they are destitute of Smell. This is sufficiently evinced in the Root of Arum, Ginger, Pepper, Zedoary, Mustard, and Water-creases: All which are of a very strong Taste; for these, when subjected to Distillation, afford little or no Oil: An infallible Proof, that the Principle of Taste is different from that of Smell; since the Matter of the latter is volatile and moveable, whereas that of the former is fixed, tho', at the same time, penetrating. Hence it follows, that Medicines, or  
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Mixtures,



Mixtures, of a strong Taste, without any Smell, such as Pepper, Ginger, and Mustard, do not heat the Body so much, nor throw its Humours into such strong Commotions, as those Substances, which, having a strong Smell, yield a large Quantity of Oil in Distillation: Hence we justly infer, that fragrant Aromatics, such as Cloves and Cinnamon, are of an hotter Nature than Ginger or Pepper, which are absolutely destitute of Smell.

But in some Vegetables there are Oils of almost three different Kinds. The first is mild, and is that which is generally express'd from their Seeds; the second is that obtain'd by moist Distillation; and the third, that yielded by dry Distillation, or Combustion: For from the Seeds of such Vegetables, those of Baum, for Instance, Origanum, and Hyssop, a temperate Oil, with little Smell, is express'd. From the Leaves of these Herbs and Flowers there is distil'd with Water, from an Alembic, an Oil of an highly fragrant Smell; and what is left in the Alembic, when dried, and subjected to a dry Distillation, yields an empyreumatic Oil, of an acrid Taste, and fetid Smell; for we are carefully to distinguish between these Oils, which are easily by a slight Fire, and strong Heat alone, obtain'd in the Form of Exhalations only; and those which, by a strong and dry Heat, are extracted from mixed Bodies; since the former rather constitute the fluid Parts, which nourish the Plant, and circulate thro' its Vessels; whereas the latter are obtain'd from the solid Parts of the Plant, the Texture of which is far more firm. Hence they require a stronger Degree of Heat, or a brisker Fire, for their Extraction. As for the Distillation of subtile ethereal Oils, the following Directions are to be observ'd.

From Flowers and Herbs gently and gradually dried in the Air, more Oil is obtain'd, than if they were humid, and as yet recent from the Earth. Thus, two Pounds of the dried Flowers of Spike yield an Ounce of distil'd Oil; whereas, if they are distil'd when recent, they hardly yield above half of that Quantity: The same Observation, also, holds good with respect to Baum, Sage, Marjoram, and Mint. The Reason is plainly this: By the gentle Drying, the aqueous Moisture is only carried off, thro' which the resinous Particles were dispers'd; so that the former being remov'd, the latter are more united, and more quickly join with each other; and, because from two Pounds of the moist Plant we obtain no more than from one of the dried Plants, and because a little of the subtile Oil is evaporated, it follows, that more Oil must be obtain'd from the dry than from the moist Plant. But 'tis to be observ'd, that if the Herbs are dried by an excessive, or too long protracted Heat, the Oil obtain'd is not only in a smaller Quantity, but, also, of a thicker Consistence, and more saturated Colour; because, by the immoderate and long-continued Heat, the more subtile Parts of the Oil are too copiously exhal'd, and dissipated in the Air. Besides, there is this Difference between Oils obtain'd from recent Plants and Flowers, and such as are yielded by them when dry, since the former are of a more mild and grateful Smell, and a fainter Colour, tho' their Quantity is less; whereas the Oils obtain'd from them, when dried, are more penetrating, of a deeper Colour, and a less grateful Smell.

Before Distillation, the Herbs to be distil'd must be macerated in Water. But, for this Purpose, we are to use River-water, but not Spring-water, which is too hard; nor Rain or Well-water, which is too thin; since the former is unfit for Solution and Extraction, whilst the latter has a strong Tendency to Putrefaction. It is, also, to be observ'd, that three Parts of Water are to be us'd for one Part of the Substance to be distil'd.

A few Handfuls of common Salt are to be added. Thus, for Instance, to ten Quarts of Water we may add three or four Handfuls of Salt: And this Caution is very necessary, because the common Salt not only assists the Extraction of the oleous Parts, but prevents Putrefaction. Besides, by this means the Water is rendered heavier, in consequence of which it prevents the Descent of the Substance to be distil'd, lest, subsiding to the Bottom of the Alembic, it should be burn'd. In my Opinion, common Salt, also, contributes to the Depuration of the Oil, and lays a Foundation for its being distil'd clear, and not turbid. Others advise the Addition of an alkaline Salt, Pot-ash, or Tartar; but I can by no means approve of this, because Tartar is with Difficulty dissolv'd; and alkaline Salts dispose to Putrefaction, which in Distillation is to be carefully guarded against.

The Maceration is not to be too long, and in the Summer-time is only to be continued for twenty-four Hours, because, if the Mixture stands longer, it approaches to Putrefaction; especially if the Herbs are turgid with a penetrating Oil, such as Meat and Marjoram particularly are.

In the Distillation of Oils, three Parts of the Alembic are to be fill'd, and only one left empty; for, when too great a Space is left, the Oil ascends with Difficulty, and, if it is urged by too strong a Fire, loses its sweet Smell; nor in this Case is the Oil so easily rais'd, as is commonly imagin'd; but, if the Alembic

is too full, it readily happens, that, during the Action of a brisk Fire, the Mixture either runs over the Alembic, or the slimy Particles of the Herbs are, at the same time, elevated: Hence the Oils are turbid, as if Slime had been put into them; and, tho' in the Beginning, a considerable Degree of Heat is requisite, in order to make the Water boil, since without this Circumstance the Ascent of the Oil is difficult; yet the Distillation is afterwards to be carried on by a moderate Heat, lest the Oil should be exhal'd like Smoke from the Beak, and dissipated in the Air. In managing the Fires we are farther to observe, that a flaming Fire is at first necessary, whereas afterwards one of live Coals is sufficient. The Distillation may be finish'd in four or five Hours, nor is it expedient to protract it longer; because the Oil, which is wanted, first ascends, and then a Water, which as it is not destitute of Virtue and Smell, is to be us'd in a fresh Distillation.

As the Oils to be distil'd differ much from each other with respect to their Texture, Weight, and Degrees of Subtility; so, in distilling each, particular Cautions are requisite; for such as are heavy, and subside to the Bottom, such as the Oils of Cloves, Cinnamon, and Sassafras-wood, as, also, those Oils which are condens'd in the Cold, such as the Oils of Anise, which in Weight surpasses other Oils, those, for Instance, of Lavender, or Marjoram, since our Statical Instrument, which descends in other Oils, floats in this; such Oils are to be distil'd from a lower Alembic, and with a greater Degree of Fire, than the more light and subtile Oils.

Because Oils differ with respect to their penetrating Qualities, their strong Smells, and powerful Virtues, the Oils of Marjoram, and Rosemary, on account of the copious volatile and acrid Salt they contain, ought to be distil'd with a far more gentle Heat, than the Oil of Mint, which requires a gentler Heat, than the Oil of Spike, which, again, requires a still more moderate Fire, than Oil of Lavender, which is highly subtile; for, if these Oils are urged by too intense an Heat, they lose their grateful Smell, and genuine Taste; and not only acquire an acrid Taste, and a strong Smell, but, also, assume a more yellowish and brownish Colour; for it can hardly be imagin'd, how much the Texture of Oils is chang'd, only by the Degrees of Fire.

There is, also, a considerable Difference in the Distillation of Oils, with respect to their Colour, Consistence, and the greater or smaller Quantity yielded by the Things to be distil'd; for, with respect to Colour, the Oil of Cloves is yielded very white; as, also, the Oils of Sassafras, Wood, and Cinnamon, which, however gradually, and especially when exposed to the open Air, in a Glass which is not full, change their Colour, and generally become yellowish; and, at last, redish. Oil of Lavender is highly limpid; that of Spike is a greenish-yellow Colour; and the Oils of Mint and Marjoram are yellow; but, when distil'd by too intense an Heat, they are redish; the Oil of Rue is of a brownish Colour, and that of Wormwood of a darkish-green Colour. The Oil obtain'd from Chamomile-flowers, without the Addition of other Substances, is of a beautiful bluish Colour; as, also, the Oil of Yarrow-flowers. But this grateful bluish Colour, especially when the Oils are exposed to the open Air, is, in Process of Time, chang'd, totally destroy'd, and degenerates into that of a Dark-yellow.

Oils, also, differ with respect to their Consistences; for some are yielded, not in a thin and liquid Form, but float coagulated like Butter, which holds principally in Oil of Roses; or firmly adhere, like a thick Magma, to the Sides of the Glass, or the leaden Pipes, thro' which they pass; so that they cannot without Difficulty, and an Infusion of rectified Spirit of Wine, be separated, as we may principally observe in the Oil of Wormwood, and that obtain'd from the Tops of Yarrow: And other Oils, or Spirits, distil'd in the same Vessels, must have a foreign Colour, Taste, and Smell, unless the Vessels are previously well washed.

In the Distillation of Oils there is, also, a considerable Difference with respect to the Quantities yielded; for some Vegetables afford a large Portion, others a moderate Quantity, and others but very little. Among all the Productions of the Earth, I know no Simple, which, besides its Turpentine, yields a larger Quantity of Oil, than Savine; since one Pound of it, in the Alembic, yields almost three Ounces of Oil. Hence, from two Pounds of it, if the Distillation is duly manag'd, at least five Ounces of Oil may be obtain'd. Savine is succeeded by Nutmegs, a Pound of which yields one Ounce of Oil, which, by Distillation from an Alembic, is rais'd, whilst, at the same time, there is left at the Bottom a large Quantity of Oil, which does not pass over the Helm, but is generally express'd from the Nutmegs. Hence 'tis obvious, that these Nuts abound with a large Quantity of mild and fix'd Oil, which is obtain'd by Expression, as, also, with a subtile Oil procur'd by Distillation.

Among Flowers, those of the Spike abound most in Oil. Hence, four Pounds of these Flowers, when dried, afford full three Ounces of Oil; but a smaller Quantity is obtain'd from the Flowers of Lavender, since four Pounds of them yield only one Ounce of Oil, which, however, is of a far more grateful and



fragrant Smell, than that of Spike. Four Pounds of the Leaves of Mint, gently dried, yield an Ounce and an half of Oil; whilst, from an equal Quantity of the Leaves of Marjoram, hardly one Ounce can be obtain'd. From fifty Pounds of Calamus Aromaticus, I only obtain'd two Ounces of Oil: There is but a very small Quantity of Oil in Mother of Thyme; neither is a large Quantity of Oil afforded by Rue: And tho' this Plant is of an acrid Taste, and penetrating Smell, yet ten Pounds of it yield only half an Ounce, or two or three Drams, of Oil. Hence 'tis certain, that in this Simple the saline is superior to the oleous Principle.

The Flowers of common and Roman Chamomile yield but a very small Quantity of Oil; for which Reason it must, when genuine, be sold at a pretty dear Rate; for the Oils of that kind, as commonly sold, are almost all adulterated: The Calamus Aromaticus, also, tho' of a pretty acrid Taste, affords but little Oil.

The Four carminative Seeds, which are Anise, Dill, Caraway, and Fennel, yield a large Quantity of Oil; but those commonly sold are generally adulterated.

We are, also, to advert to the specific and distinguishing Taste and Smell of some Oils. Thus, the Oils of Thyme and Savory are so acrid, as to corrode the Nostrils. The Oil of Wormwood, which is highly bitter, fills the Head with a fetid Vapour; and 'tis to be observ'd, that this Oil, when distill'd from green Wormwood, is green; but of a brownish-yellow Colour, when obtain'd from old Wormwood. The Oil of Chervil, in Taste, resembles that of Fennel; Oil of Tansey, in Smell, greatly resembles the Herb from which it is obtain'd.

It is in a particular manner to be observ'd, that Plants, and their various Parts, whether Seeds, Flowers, or Leaves, do not in all Seasons, and at every Age, yield equal Quantities of Oil; for if Mint, Thyme, Rue, Baum, or Marjoram, when recent, tender, and young, are subjected to Distillation, they yield little or no Oil; but they must be arriv'd at a just Degree of Vigour and Perfection; when, for Instance, they begin to rise into small Heads, or Flowers: And, as, in old Animals, the Strength is much impair'd and diminish'd, so, also, old Plants lose a great deal of their Virtues, and yield but little Oil. Hence 'tis obvious, that the perfect Strength and Maturity of Plants consists in the Abundance of the Oil they contain, and, which is either large, or small, according to the Period of their Age.

'Tis, also, to be observ'd, that the Seasons and Constitutions of the Year contribute greatly to the obtaining a larger or smaller Quantity of Oil; for I have often observ'd, that if the Spring or Summer are too moist, or rainy, Herbs, and their Flowers, Spike, for Instance, or Lavender, do not yield so large a Quantity of Oil, as when these Seasons are moderately warm and dry: Hence we learn, that a due Temperature, Purity, and Drinels of the Air and Weather, contribute greatly to bring Vegetables to their due Maturity and Perfection.

#### OF THE ADULTERATION OF DISTILL'D OILS.

'Tis a shameful, tho' true Assertion, that the true and genuine Oils of Plants are rarely to be had in the Shops; since, in order to increase their Weight and Price, 'tis customary, in distilling them, to mix with them some pinguious or other Substances of little Value. As for the dear aromatic Oils exported from *Holland*, 'tis certain from Experience, that they are almost all adulterated, as is obvious in the Oils of Cinnamon, Cloves, Nutmegs, and Mace. But in these the Fraud is easily detected by pouring Alcohol of Wine, or highly rectified Spirit of Wine, upon them; for this Liquor immediately resolves and imbibes the Particles of the pure Oil, leaving in the Bottom a large Quantity of express'd Oil; either of Almonds, or Ben-nuts. But the more skilful of the Chymists have an artful Method of concealing this Piece of Fraud; for they dissolve pure Oil of Cinnamon, or Cloves, by adding an equal Quantity of highly rectified Spirit of Wine, which may be so prepared, that one Part of the Spirit may absorb one Part of the Oil, whilst the Taste remains, and the Smell continues sufficiently strong and penetrating, so that the Impostition is with Difficulty discover'd. But this Piece of Fraud is, also, quickly discover'd, if these Oils are poured into common Water; for then the Water immediately becomes milky, which Effect is not produc'd by pure Oil, when put into cold Water, and left to itself. There is still another Method of adulterating the Oils of Plants, by mixing Oil of Turpentine, or Pine, with the Herbs to be distill'd; and this Piece of Fraud is most commonly committed in preparing cephalic Oils from Plants, which abound with a balsamic Resin, such as Mint, Origanum, Sage, Rosemary, Marjoram, Savory, Thyme, Mother of Thyme, the Flowers of Spike and Lavender, and Basilicon; from which, by the Addition of these Oils, they obtain a large Quantity of Oil, tho' of a bad Kind, and inconsiderable Virtues; but such Oils, if the Plants are recent, retain their specific and distinguishing Taste and Smell. But this Piece of Fraud is easily detected; for, if such Oils are kept for some time, they lose their grateful Smell, and the disagreeable Odour of the Turpentine remains. But there is still a more

expeditious Method of discovering this Fraud; for if a Piece of Cloth macerated in such Oil is put in a warm Place, or exposed to an hot Furnace, the subtile Fragrance is immediately exhal'd, and the Smell of Turpentine discovers itself.

Besides, the cephalic Oils, adulterated with Turpentine, or Oil of Pines, are more limpid than the genuine Oils, which are of a deeper Colour. There is, also, another Method of detecting this Fraud; which is, when the Letters of the Signature put upon the Mouth of the Glass become successively pale, which does not happen with the genuine Oils; for the Effluvia of the Turpentine contain a subtile Acid, which, in Process of Time, destroys the Colour of the Ink. Some, in the Distillation of these Oils, instead of Turpentine, add Seeds which contain a large Quantity of pinguious Juice, such as those of Poppies; and by this means that thick Oil, which at other times is generally express'd, with Difficulty passes the Helm, is rais'd and distill'd in Conjunction with a Portion of subtile and ethereal Oil: And this is the usual Method of adulterating the Oil of Rue; for tho' Rue is of a strong Taste, and penetrating Smell, yet there is hardly any Plant, which affords a smaller Quantity of Oil: But pure Oil of Rue is easily distinguish'd from that which is adulterated, since, when genuine, it does not become thick and coagulated, when expos'd to the Cold; but is inspissated, when it is adulterated with any express'd Oil. The Oils of Chamomile, and the Tops of Yarrow, when pure and recent, are of a beautiful bluish Colour, which is afterwards chang'd into that of brown; for, if this bluish Colour of the Oil of Chamomile-flowers remain above a Year, 'tis a sure Sign, that it is adulterated; for 'tis customary to mix with it Oil of Turpentine, which is of a deep-bluish Colour, on account of the Tincture it receives from the Copper of the Vessel. 'Tis of great Importance to the Physician, to be able to distinguish genuine from adulterated Oils; for these balsamic and cephalic Oils not only lose much of their Efficacy, but, also, acquire a foreign Quality, by being adulterated; and 'tis sufficiently known, that all terebinthinaceous Substances violently exagitate the Mass of Blood and Humours, and create an intense Heat in the Body.

#### OF SOME RARE DISTILL'D OILS.

In the Shops there are a great many Oils, most of which may be obtain'd by Distillation; but some of them are yielded in so small Quantities, and are so rare, that they are sold at very high Prices. But this Circumstance ought not to deter the Physician from prescribing them, since they are of singular Efficacy in preserving and restoring Health.

Among the rare Oils, especially those obtain'd from the Woods, we shall first consider that of yellow Sanders, which, on account of its grateful Taste and Smell, and the large Quantity of Resin it contains, deserves to be more us'd in Medicine, than it has hitherto been; for it not only yields a very elegant Tincture, with highly rectified Spirit of Wine; but, also, the Wood itself, when ras'd down, and macerated in Water for a considerable time, with the Addition of common Salt, affords an elegant Oil, of an excellent Taste, and admirable Virtues; since in Smell it resembles the Oil of Amber; a certain Sign, that it is possess'd of a cordial Quality: It is most commodiously dissolv'd in some rectified Spirit; such as that of Roses, or white Lilies, which are commodiously mix'd with corroborative, cephalic, and stomachic Medicines.

From odorous and sweet-scented Aloes-wood is prepared an Oil of a thick Consistence, of a whitish Colour like Camphire; for this Purpose about ten Pounds of Aloes-wood are to be ras'd down, triturated, and, after a sufficient Maceration in Water, subjected to Distillation in a pretty large Still: Upon which, a small Quantity of a fragrant and delicate resinous, or rather oleous Substance, is obtain'd; but no more than half an Ounce was obtain'd from the ten Pounds of Aloes-wood. This Oil is quickly dissolv'd in Alcohol of Wine, and is an incomparable Medicine for restoring Strength, and corroborating the Stomach.

Among the rare and precious Oils, we may justly reckon the Oils of Scurvygrass, and *Syrian Marum*. A small Portion of the former is only obtain'd from a large Quantity of Scurvygrass; but it is so highly volatile, that it is with Difficulty preserv'd in Glasses, and must be carefully kept from evaporating in the Air; for which Purpose some cork the Glass well, and immerse them in Water, partly to guard against the Heat, and partly to prevent the Access of the Air: It is, also, of so penetrating a Taste and Smell, that one small Drop of it communicates a strong Taste to an Ounce of the Spirit of Wine; or a small Drop of it dissolv'd, and pour'd into a Quart of Wine, imparts so strong a Taste and Smell of Scurvygrass to it, that it acts strongly on the Nostrils, and affects all the internal Parts of the Head. This Oil is, also, very heavy; for, like Oil of Cloves and Cinnamon, it subsides in Water. It is sold at a great Price, since in *England*, where large Quantities of it are prepar'd, one Ounce of it is sold for Eight Crowns.

The next most considerable Oil is that of true Marum, a Plant which contains an highly acrid, volatile, and oleous Salt; for which Reason its Oil, in Taste and Smell, is hardly inferior to that of Scurvygrass, neither is it sold at a cheaper Rate.



Rate. Among the rare and little known Oils we may, also, reckon that of Basilicon, which, on account of its penetrating fragrant Smell, and its cephalic and nervous Virtues, is far superior to the Oil of Marjoram, tho' much dearer by reason of the Scarcity of Basilicon.

True Oil of Baum, which is at present often mistaken for Oil of Camels-hay, on account of the Similitude of their Smells, may, also, be reckon'd among the rare and precious Oils, because a large Quantity of Baum yields but a very small Portion of Oil. Its Scarcity is, however, compensated by its uncommon Efficacy in removing Diseases of the Head, and corroborating the nervous System.

Among the Oils of this kind, we may, also, reckon that of the wild Cinnamon, which is not much known in the Shops. This Oil is, also dear, because a large Quantity of the Bark yields but very little of it.

Among the Oils which are but little known, we may, also, reckon that of the *Ranunculus esculentus*, a domestic and Kitchen Herb, whose Oil is possess'd of a subtile and penetrating Taste, and a grateful Smell; and as the Water of this Herb is highly efficacious in an Asthma, especially of the moist kind, so, in this Disorder, the Virtues of its Oil are more conspicuous, especially when mixed with Sugar, and exhibited.

From black Cumin-seeds there is, also, an Oil prepar'd, which is not much known, but which is, of all others, the most powerful Carminative.

The Oil of *Cretan* Origanum, instead of which the Oils of Thyme or Savory are generally us'd, by its acrid Taste and Smell, strikes the Nostrils strongly, operates as an Errhine, and dissolves Phlegm: Some highly esteem'd this Oil, as an Arcanum for curing the Tooth-ach.

There are, also, other rare and precious Oils brought from the *Indies*, such as the Oil of the Flowers of Cananga, the aromatic Oil of Cajeputum, the Oil of Cedar, the Oil of Cullabanum, the Oil of *African* Hypericon, the Oil of Kike-kunemah, the Oil of Spikenard, Oil of Camels-hay, the Oil of Malabathrum, and the Oil of Camphire prepar'd with Cinnamon, each of which has its proper Uses and Virtues.

Among the rare, precious, and useful Oils, we may, also, reckon that obtain'd by Expression from recent Orange-peel; as, also, the Oil of Mace by Expression, and that obtain'd from the Flowers of the Orange-tree duly distil'd.

#### SOME CAUTIONS TO BE OBSERV'D IN THE DISTILLATION AND PRESERVATION OF OILS.

It frequently happens, that Oils, in Distillation, are yielded either too acrid, or of too deep a Colour, especially if they are urg'd by too strong a Fire; and this is principally to be observ'd, when these Herbs which abound with a large Quantity of acrid Salt, such as Thyme, Savory, Marjoram, and *Cretan* Origanum, are subjected to Distillation; for, if the Distillation is accelerated by too brisk a Fire, the Oils not only lose their grateful Smell, but, also, acquire a brownish or redish Colour, which by no means happens, if the Distillation is carried on by a moderate Fire.

Hence we learn, that excessive Heat is of great Efficacy in changing the Texture of Oils: And this Observation is applicable to the human Body, since we see, that, by the intense Heat in Fevers, the temperate and sulphureous Parts of the Blood and Humours are surprisngly agitated; so that it is not to be wonder'd at, if the oleous and temperate Principle of the Blood is converted into an highly saline sulphureous Matter, which, being discharg'd by Stool and Urine, renders the Faeces bilious and yellow, and the Urine intensely red.

'Tis not to be doubted, but, if right Measures are taken, those Oils, which, by too intense an Heat in Distillation, have, in a great measure, lost their grateful Taste, their Fragrance, and their Colour, may, by Rectification, be reduc'd to a due Degree of Perfection: But if the Rectification is attempted by putting the Oils in a Glass Retort, and carrying on the Distillation by a Sand-heat, we find our selves deceiv'd, since, by this means, these Oils have an ungrateful empyreumatic Smell, and are so far from acquiring their due and grateful Sweetness, that they are rather rendered more acrid. The Rectification is, therefore, to be made in another manner: Those Oils, for Instance, are to be mixed with common Salt, with which they are to be strongly triturated, taking three Parts of Salt to one of Oil: Then, adding a sufficient Quantity of Water, the Rectification is to be made from an Alembic, by which means there is yielded an Oil far clearer, and of a more grateful Colour; and what is surprisng is, that in the Bottom of the Alembic there is found a thick black Mass, which firmly adheres to the Hands, and the Quantity of which is the greater, the thicker and deeper-colour'd the Oils are: I have often observ'd, that Oil of Marjoram contain'd more of this resinous Substance than other Oils, since an Ounce of it generally affords a Dram of such a Substance: The Oils of Mint, Spike, and Lavender, thus treated, do not leave so great a Quantity of Resin; but the Oils of Thyme and Savory afford a large Quantity of it:

We, also, find that old Oils, and such as are of a gross Consistence, yield a large Quantity of this Resin.

This Experiment sufficiently evinces, that Oils are nothing but subtile and liquid Refins closely united with Phlegm, and some ethereal Spirit; as, also, that those Oils are hottest, which contain the largest Quantity of Resin: For which Reason such Oils should always be cautiously prescrib'd internally by the Physician, because all subtile oleous Substances induce an intense and long-continuing Heat on the Humours of the human Body.

'Tis, also, to be observ'd, that Oils, render'd more pure and limpid by this Rectification, are not so soon dissolv'd by rectified Spirit of Wine, as they were before; but for this Purpose they require highly rectified Spirit of Wine, since they are form'd into small Globules, and with great Difficulty incorporated with common Spirit.

'Tis, also, certain from Experience, that ethereal, limpid, and fragrant Oils become thicker by Age, and lose a great deal of their Fragrance; and, if we want to restore this Fragrance, we must infuse them with recent Herbs, and Leaves, and reiterate the Distillation from an Alembic; by which means they are again impregnated with that subtile, sweet, and spirituous Principle, which they had lost by excessive Age.

From this Experiment we learn, that, besides a sulphureous, saline, earthy, or aqueous Principle, there is, also, another in Oils, which the Ancients call'd Spirit, which is highly active, of a thin ethereal Substance, and necessary to preserve the natural Crasis and Texture of the Oil.

This Spirit is principally dispos'd to Evaporation, by the Heat of the Air; and, when this Spirit is lost, we find that the Oil is greatly chang'd in its Consistence, Smell, Taste, and Virtues. If, therefore, we intend to preserve Oils, we must not only carefully stop the Vessels which contain them; but, also, deposit them in cold Places, so that, the Spirit being pent up in them, their Texture may remain entire.

Because the Air, especially when hot, induces a greater Change on the Nature of Oils, and the Quality of the oleous Mixture, than any thing else, whilst, by long acting upon them, it deprives them of their grateful Taste and Smell, and inspissates them, the express'd Oils tending to a rancid State, and those distil'd to a terebinthinaceous Nature; the Colour, also, being in some greatly chang'd; hence Oils are carefully to be preserv'd from the free Access of an hot Air, which may be done by filling the Vessels in which they are kept, allowing only a small Space for Rarefaction, lest, upon the Approach of Heat, they should burst: They are, also, to be carefully stop'd, and put into cold and dry Places.

Some, in order to preserve Oils, add some Water; such, for Instance, as distil'd Rose-water, which is of excellent Service, when there it not Oil enough to fill the whole Glass, since the Water, by its Exhalation, keeps the Consistence of the Oil thin, and hinders it from being inspissated.

'Tis, also, certain from Experience, that Oils can never be intimately united and incorporated with Water: But these Substances, naturally immiscible, may by Art be so mix'd, as not to be separated from each other. This is most commodiously done, by pouring a few Drops of any aromatic Oil on Sugar, then putting it into Water, and shaking it; by which means the whole Oil in a Moment enters the Pores of the Water. Thus we may, in an extemporaneous manner, prepare the Waters of Cinnamon, Cedar, Nutmeg, Mint, Baum, and Hyssop, which are otherwise to be only obtain'd with considerable Labour by Distillation. Besides, by the Addition of a small Quantity of Spirit of Wine, these Waters become spirituous. The Reason of this is, that the Oil, by reason of its ramified and branchy Particles cannot enter the Pores of the Water; but because the Sugar is easily and quickly admitted into the Pores of the Water, which, easily adhering to the branchy Parts of the Oil, divides and disjoins them, hence they become capable of an intimate Mixture with Water. *Hoffman. Obs. Phys. Chym. Lib. 1.*

#### OLEUM TERRÆ. OFFIC. OIL OF EARTH. *Dale.*

This Oil is of two Kinds, the red, and the black: The red is brought from the *East Indies*, and is of a pellucid red Colour, and has a strong Smell like *Petroleum*, but more grateful, as *Schroder* says; but, as to what we know of this Oil, it is either the same with *Petroleum*, or else is unknown in our Shops.

The *Indian* Oil of Earth, described by *Naubowus*, is scarcely ever brought over to us, but ingrossed by the *Asian* Potentates; but whether it be a Species of *Petroleum*, or *Naphtha*, I cannot certainly determine. What is brought to us from the *Indies*, and sold for Oil of Earth, is prepared of express'd Oil of the Cocoa-nut, mixed with medicated Earths, as I have been inform'd by a Person very skillful in these Matters, and therefore wholly belongs to the Class of Vegetables. *Boerhaave.*

These Kinds of *Bitumen* differ only in Degree, as some think, so as that the more spirituous and subtile Part of it is the *Naphtha*, the next to it the *Petroleum*, and the grosser and more tenacious Part *Asphaltum*; just as we see in Amber, from which,



which, by Distillation, there is obtained, first, a spirituous and limpid Oil, representing *Naphtha*; soon after, comes off a yellow and thicker Oil, resembling *Petroleum*; and, last of all, a black feculent Matter, which might pass for *Asphaltum Dale*.

OLFACTORII NERVI. The Olfactory Nerves. See NERVI, and CEREBRUM.

OLFACTUS. The Sense of Smelling.

The Nostrils, which are in Number two, and run upwards from a wide Cavity, gradually becoming narrower, are excellently adapted for attracting volatile odorous Particles, and applying them to their Surface; especially whilst they are, at the same time, contracted by the united Action of the Muscles, which constrict the Alæ of the Nose, and which, arising fleshy from the anterior and inferior Part of the fourth Bone of the upper Jaw, are inserted in the Alæ of the Nostrils, sometimes in Conjunction with the Semilunar Muscle of *Eustachius*.

The Capacity of both Nostrils is all that Space, into which open, first, the frontal Sinuses, which are generally form'd among the separated Laminæ of the *Os Frontis*, under the Eminence lying below the Eye-brow, and which, afterwards, open upwards, with a large *Foramen*, into the Cavities of the Nostrils, next to the superior Bones of the Nose. These Sinuses receive the mucous Membrane of the Nose, with which the whole interior Surface of their Cavities is lined, and from which the Mucus, when generated, drops into the Cavities of the Nostrils.

Secondly, the *Antra Highmoriana Magna*, form'd in the superior Jaw, and opening themselves, with a large *Foramen*, into the Cavities of the Nostrils, also, are lined with the same Membrane, prepare, collect, and secrete the Mucus into the Nostrils.

Thirdly, the *Cellulae* of the *Os Cuneiforme*, under the superior spongy Bone of the Nose, opening by *Foramina* frequently distinct, into the Cavities of the Nostrils, receive the mucous Membrane of the Nose, are cover'd with it, secrete the Mucus, and discharge it by this very Passage.

Besides, there are lodged in the Cavities of the Nostrils, and in various Places, curiously disposed, the four spongy Bones of the Nostrils; in each two. The superior is anteriorly united to the superior Part of the Maxillary Bone, where it is united with the *Apophysis* of the *Os Frontis*, at the internal Angle of the Eye. The other, or inferior spongy Bone of the Nostrils, is, in the inferior Part of their Cavities, join'd to the Maxillary Bone. These four Bones are wonderfully form'd of bony Laminæ, thinner than Paper, and so wrapt up, or disposed, as to form many Cavities; among which, the mucous Membrane insinuates itself in such a manner, as to enter, run out, accurately cover the Surfaces between the Laminæ, and leave the Cavity free and unconfined. These Cavities of the spongy Bones, and of all the *Cellulae*, open freely into the Cavities of the Nostrils.

The Nostrils are lined with a thick and soft Membrane, which is furnished not only with an incredible Number of small arterial Vessels, but, also, with round glandular Corpuscles, and a Set of minute Vessels, which distil a thin Lymph. This Membrane curiously insinuates itself into the Cavities of the six Sinuses, and into the *Cellulae* of the four spongy Bones. Hence by a wonderful Contrivance in this narrow Cavity of the Nostrils, the Surface of the last described Membrane is greatly enlarged; but yet in such a Manner, as that one Part does not incommode another.

The olfactory Nerves, without being accompanied by the *Dura Mater*, reaching to the *Os Ethmoides*, apply their tender Fibrils to the small *Foramina* found in that Bone; and, penetrating the small Vaginae, which they receive from the *Dura Mater*, the Fibres are sent out from the *Os Ethmoides*, and immediately and accurately distributed over all that large Surface, above described, into all the Sinuses and *Cellulae*.

Hence 'tis sufficiently obvious, that these Nerves are widely expanded; and that in no Part of the Body are there to be found Nerves so soft, naked, and, consequently, easily affected and injured, as in this.

Besides, by means of the inconceivable Number of Glands lodged in this Membrane, and by the large Quantity of arterial Vessels distributed in this Part, in the Form of *Fasciculi*, there is continually here prepared and secreted a mild, fluid, inodorous, and pale-colour'd Liquor, with scarce any saline Taste, in order to moisten, lubricate, and defend the Nerves everywhere, and in all the Cavities above described. This Liquor, when left in a State of Rest, is always collected, becomes itaginant, and inspissated; and, when discharged in whatever Disposition of the Body, is called *Mucus*; by means of which, the highly tender olfactory Nerves, which would otherwise be easily disorder'd, remain good for a great Number of Years.

But, lest this Liquor, which is easily concreted when it is accumulated, stagnant, and inspissated by too long a Continuance in its Cavities, should become unfit to pass through the narrow Orifices of these Receptacles, there is distributed to these Parts a Ramification of the fifth Pair of Nerves, convey'd hither from its Union with a Nerve of the sixth Pair. By the Irritation of this Ramification, the intercostal Pair, the *Par Vagus*, and, consequently, the Nerves of the Muscles subservient to Respiration, are put in Motion. Hence, Sternutation being produced by the Force of the Air violently propel'd, and rushing into these Cavities, the Mucus is absterge'd.

The Objects of Smell are those Parts of Animals, Vegetables, and Fossils, which are lodged in their Spirit, Oil, Salt, or Soap, if they are so divided as to become capable of floating in the Atmosphere. But 'tis obvious from Experiments, that the subtle Principle lodged in Oil, and called the Spirit, is the principal Thing which excites the Sense of Smelling; for, when this Principle is totally separated from odorous Bodies, the Residuum hardly retains any Smell; and a Fragrance is procured to other Substances, by pouring this Spirit upon them.

An Animal breathing thro' the *Aspera Arteria*, cut, and appearing thro' the Wound without the Neck, has no Sense of Smelling excited, even by the most highly odorous Substances.

The Person who expels the Air from his Lungs thro' his Nostrils, has no Sense of Smell excited by external Objects, during that Action.

The Person, in like Manner, who retains his Breath, is almost incapable of perceiving any Smell.

But the Person who attracts the Air thro' his Nostrils, has the Idea of Smell excited.

And the more strongly he attracts the Air, and expels it reciprocally, the brisker the Sense of Smell is.

The Smell of odorous Substances is increased by Motion, Heat, Attrition, and an Admixture of various Things. And the Smell of odorous Substances, of an oily Nature, is augmented by a cautious Admixture of Salts.

The Sense of Smell is, therefore, excited, when the odorous Effluvia contain'd in the Air, and, during Inspiration, sufficiently strongly attracted thro' the Nostrils, are, by this Force, applied to the olfactory nervous Fibrils, which, by the Structure of the Nose, and the Position of its Bones, are exposed to them. When these Effluvia thus act upon the olfactory nervous Fibrils, and communicate this Action to the common Sensory, they excite either an acid, alkaline, aromatic, putrid, or vinous Smell.

Hence we may understand, how great an Affinity there is between odorous and sapid Substances; or the Objects of Taste and Smell:

Why Smells, or Odours, often restore Life instantaneously, and as it were in a Moment:

For what Reason Odours, sometimes, excite Diseases and Death; and produce almost all the same Effects with Medicines of all Kinds, whether of a medicinal, or deleterious Quality:

Why, in different Persons, the same Smell, arising from the same odorous Body, produces so widely different Effects:

Why Animals, who are furnish'd with very long Beaks and Nostrils, and the spongy Bones of whose Noses are very large, have a quicker Sense of Smelling than others:

Why the smallest exhaling Corpuscles, whilst, at the same time, the Mass from which they exhale, is, upon being weigh'd, hardly diminished, are capable of communicating so strong and long-continued a Smell:

Why the fetid Smell, exhaling from the putrid Parts of Animals and Vegetables, when once convey'd to the Nostrils, is so obstinate, troublesome, and lasts so long:

Whether the strongest odoriferous Substances are not also possess'd of a sternutatory Quality:

What the Use is of the Humour and Mucus continually generated, and distributed in the Nostrils:

Why the Sense of Smelling is dull and languid, when a Person first awakes out of his Sleep; but becomes more brisk and quick after he has sneezed:

Whether the Discharge of the Mucus is not subservient to the cleansing of the Brain; and how far this Doctrine is true:

Whether the Mucus is originally thick, when generated; or whether it afterwards becomes so:

Whence proceeds the so great Communication of the interior Nose, with the Muscles subservient to Respiration, and the abdominal Viscera:

Whether Sternutation is not a kind of Convulsion, and for that Reason fatiguing, often productive of Pain, and sometimes mortal:

Why, in the mean time, it excites and increases the Motion of the Brain, Spirits, and all the Humours: Why it is frequent in the Morning after Sleep; and what good Purposes it answers.

OLIBANUM.

*Olibanum & Thus maris*. Offic. *Olibanum sive Thus*. Park. Theat. 1602. Raii Hist. 2. 1840. *Olibanum Officinatum*. Geoff. Traët. 362. *Olibanum sive Thus masculum*, Ind. Med. 75. *Thus*. J. B. 1. 302. Schrod. 4. 223. *Thus, Thus masculinum Olibanum*. Mont. Exot. 11. *Arbor thurifera*. Ger. 1247. Emac. 1435. C. B. P. 399. *Thus sive Olibanum Officinatum*. Ejsid. 501. FRANKINCENSE, or OLIBANUM.

*Olibanum* is a dry resinous Gum, which is brought from the Indies, and gotten from a Tree which is said to grow in Arabia; but of what Species it is, we are altogether ignorant; the best is that which is in large Drops, of an opaque, white Colour, with a little Yellowness, and sometimes a Reddishness, of a strong, resinous Smell, and a warm bitterish Taste.

It is hot, dry, and binding; useful against Diseases of the Breast, as Coughs, Shortness of Breath, catarrhus Desfluxions of Rheum, and Spitting of Blood; it helps a Looseness and Bloody-flux; and stops a Gonorrhœa, and the Whites: Outwardly used

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in



in Fumigations, it stops Defluxions of Rheum on the Nostrils, and is good to cicatrize Wounds and Ulcers. *Miller's Bot. Off.*

The Tree which produces this Incense, grows in the Heart of *Africa*; but we know not what it is. It is a good Sudorific, and has, by some, been order'd in Pleurisies, in the Quantity of a Dram, being first baked in an Apple, by the Fire-side, and then eaten. This Medicine ought to be taken in the Beginning of the Disease, after the Patient has been blooded once or twice. This Method was followed for a whole Year, at the *Hôtel Dieu*, by *M. Hagar*, Physician of that Hospital, with surprising Success; but the next Year it had scarce any Effect at all. *Olibanum* is also cordial, and very serviceable in Hæmorrhages, when mixed with proper Astringents. Externally, it is resolvent, emollient, &c. and resists Putrefaction. It may, also, be used as a Fumigation, to raise Sweat, in Rheumatisms, either alone, or mix'd with Amber. *Geoffroy*.

This is a resinous Substance, of a pale-yellow Colour, somewhat hard and pellucid, form'd into small Drops, like Mastich, of a bitterish resinous Taste, and fragrant Smell. It drops spontaneously from the Tree which produces it, and is transported to us from *Turkey* and the *East-Indies*. That which is in small Drops, is preferable to the other Kinds. It is heating, drying, and subastringent. It is principally used, internally, against various Disorders of the Head and Breast; as, also, against Fluxes, and Hæmorrhages of the Uterus, Coughs, Vomitings, Spittings of Blood, Diarrhæas, and Dysenteries. Externally, Fumigations of it corroborate the Head. It dissolves Catarrhs, incurs hollow Ulcers, and brings them to a Cicatrix. It conglutinates recent Wounds, especially those of the Head. It cures Chilblanes, and mitigates malignant Ulcers, not only of the Anus, but, also, of other Parts. It, also, removes Redness and Inflammation of the Eyes; and carries off beginning Warts and Impetigos. *Schrod.*

What we call the *Manna Thuris* of the Shops, are Fragments of the Frankincense, as small as Meal, produced by the Collision of the Bags with each other, during the Carriage. But others, by the *Manna Thuris*, mean small Portions of the Frankincense.

Nothing certain is left upon Record, with respect to the Tree which bears the Frankincense. *Theophrastus* informs us, that it is not a very large Tree; that it is about five Cubits high, full of Branches, with Leaves resembling those of the Pear-tree, and a smooth Bark, like that of the Bay-tree; but, says he, others affirm it to be like the Mastich-tree, bearing a similar Fruit, and a redish-colour'd Leaf; whilst others assert, that both its Leaves and Bark resemble those of the Bay-tree. *Diodorus Siculus* ascribes the Form of the *Egyptian* Thorn to the Tree which bears the Frankincense, and the Leaves of the Willow. *Garcias* informs us, that this is a low Tree, whose Leaves resemble those of the Mastich-tree: But *Thevetus* informs us, that it resembles the Resin-bearing Pines. Mr. *Ray* also affirms, that we are still uncertain of the true Form of this Tree. *Dale*.

OLIGOPHORUS, ὀλιγοφόρος. An Epithet for Wine, in *Hippocrates*, importing it being very small, weak, and watery.

OLISTHEMA, ὀλίσθημα, from ὀλισθαίνω, to fall out. A Luxation. *Hippocrates*.

OLIVA. An Olive. See OLIVA.

OLIVARIA CORPORA. Two Prominences, on the *Medulla Oblongata*, are called by this Name.

OLIVITAS. Oiliness.

OLOPHLYCTIDES, ὀλοφλυκτίδες. The same as *PHLYCTÆNÆ*. *Erotian*.

OLOR. The Swan. See CYGNUS.

OLUS ALBUM. A Name for the *Valeriana*; *arvensis*; *præcox*; *humilis*; *semine depresso*.

OLUS ATRUM. A Name for the *SMYRNIUM*.

OLY. The oleous Substance of Metals, swimming on the Surface of their solvent *Menstruums*. *Rulandus*.

OLYMPIACUM COLLYRIUM. The Name of a Collyrium described by *Paulus Aegineta*, *L. 7. C. 16*.

OLYMPIANUM OXYPORIUM. The Name of a Medicine described by *Marcellus Empiricus*, *C. 20*. and recommended for promoting Digestion.

OLYNTIOS, ὀλυνθος. An unripe Fig. *Hippocrates*.

OLYRA. Olfic. Park. Theat. 1124. *Zea Amylea* sive *Olyra*. *C. B.* Theat. *Zea Amylea vel Zeopyrum Amyleum*. *C. B. P. 22*. *Zea verna*, *J. B. 2. 413*. *Raii Hist. 2. 1743*. *Triticum Amyleum*. *Ger. 63*. *Emac. 60*. SPRAT-CORN.

This Species of Corn is sown in *Germany*, and reaped late. The Seeds are used in the Kitchens of *Germany*. It agrees in Virtues with the *Spelt* Wheat, but is somewhat less nutritive.

Of the *Olyra* a coarse Meal is, also, made. *Dale*.

OLYSCION. The seventh Part of an *Hemina*. *Marcellus Empiricus*.

OMAGRA. The Gout in the Articulation of the *Humerus* with the *Scapula*.

OMASUM. The third Ventricle of a ruminating Animal.

OMELYSIS, ὀμήλυσσις, from ὀμας, crude, as *Galen*, in his *Exegesis*, expounds it, is the Meal of Barley, not parched. He adds, that some properly apply the Term only to crude Meal, but others use it, improperly, to signify all other Sorts of Meal. *Hippocrates*, in several Places, advises *Omelysis* boiled in Wine and Oil, and reduced to the Form of a Cataplasm, to be ap-

plied warm, outwardly, to a Tumor of the Tonsils, and, also, in the *Hypoglossis*; and, *Lib. 2. περὶ γυναικ.* he prescribes ὀμήλυσιν κριθῶν, crude Meal of Barley, in a Potion, for an Hæmorrhage of the Womb, ῥύς ἐρυθρῆ, in Women. Sometimes the Word signifies all Sorts of crude Meal, and wants an Epithet to distinguish it, as ὀμήλυσσις κριθῶν, *Farina hordeacea*, Meal of Barley in particular. It is, by *Hesychius*, explain'd, Barley-meal, or a Cataplasm made thereof. In *Absyrtus*, one of the Hippiatric Writers, *Omelysis* is a Mixture of the Meals of Fenugreek, Linseed, and Barley, in equal Quantities. In *Cælius Aurelianus*, it signifies sometimes a Cataplasm of Meal, or of Bread soak'd in Water; and sometimes of Meals prepared in the same Manner. It is sometimes wrote ὀμήλυσσις, in two Words.

OMENTA. The Membranes of the Brain. *Castellus* from *Mercurialis*.

OMENTUM. See EPIPLOON.

As the Omentum is a soft and pinguous Part, in consequence of its Laxity, highly subject to receive the Humours convey'd to it from other Parts, 'tis for this Reason, as well as the Omentum and Pancreas, subject to various Disorders; which, however, are not described by Authors, because they can hardly, if at all, be discover'd in live Persons; and are only to be investigated by laying open their Carcasses, as is obvious from the Cases recorded by various Authors. Thus *Vesalius* informs us, that in a certain Carcase, when laid open, he saw the Omentum so preternaturally tumid, that it weigh'd about five Pounds; whereas, in its natural State, it hardly exceeds half a Pound. *Roussel*, in his Treatise *de Partu Casareo*, tells us, that, upon laying open a Carcase at *Paris*, there was a very considerable Abscess found on the Omentum. *Riolanus*, also, in his *Anthropographia*, informs us, that, upon laying open the Body of a young Gentleman of nineteen Years of Age, he saw the Omentum full of a large Number of Glands, from which a considerable Quantity of sordid Humours had been convey'd to it; whilst, at the same time, the Mesentery and Pancreas were, by means of the Abscess, putrefied; and the Spleen so greatly diminish'd, as to be almost entirely consumed. And I myself, upon laying open the Body of a Canon of *Montpelier*, saw the Omentum scirrhus, possessing the whole epigastric Region, and about four Fingers-breadth in Thickness. The Colour of this Tumor of the Omentum resembled that of the Spleen: So that 'tis highly probable, that the melancholic Humour was translated from the Spleen, and accumulated in that Part, since the Patient was of an highly melancholic Constitution, and since, thro' the splenic Ramifications, there is a sufficiently potent Conveyance from the Spleen to the Omentum. According to *Hippocrates*, in a Dropsy, the Waters are also frequently convey'd from the Spleen to the Omentum, from which they gradually drop into the Cavity of the Abdomen.

But as the Tumors of the Omentum are not, by all the Efforts of Art, to be distinguished from those of the Mesentery, so their diagnostic or distinguishing Signs cannot possibly be ascertain'd. 'Tis true, indeed, Tumors of the Omentum are more easily perceived by the first Touch, because that Part lies immediately under the Peritonæum, whereas the Mesentery is situated deeper: But the larger Tumors of the Mesentery rise to the Peritonæum, and even the epigastric Muscles are, sometimes, so united with it, that, a Suppuration happening, these Tumors discharge their sordid Contents thro' the Navel, or some other Part.

But this Difficulty of ascertaining the diagnostic Signs of these Disorders by no means produces any Perplexity in the Method of Cure; since in all Tumors of the same Species, possessing the inferior Parts of the Abdomen, the same Measures are to be taken; which, however, are not so successful in the Omentum, which is not furnished with so commodious Outlets for the Matter of these Tumors, as the other Parts are. *River. Prax. Med. Lib. 13. Cap. 5*.

OMOCOTYLE, ὀμοκοτύλη. The Cavity in the Extremity of the Neck of the *Scapula*, in which the Head of the *Humerus* is articulated.

OMOLINON, ὀμόλινον, seems to have two Significations, one of which is crude, or raw Flax; the other, coarse, or unbleach'd Thread, or Cloth.

OMOPLATÆ, ὀμοπλαταί, from ὀμός, the Shoulder, and πλατὺς, broad. The *Scapula*.

OMOS, ὄμος. The Shoulder. The Part of the *Uterus*, beyond the Neck, where it grows broad, is, also, thus call'd by *Moschion*.

OMOTARICHOS, ὀμοτάριχος, the Flesh of the pickled Tunny-fish; which *Dioscorides* recommends, taken internally, against the Bites of Vipers, and mad Dogs, *L. 2. C. 33*.

OMOTRIBES. An Epithet for Oil, importing its being express'd from unripe Olives.

OMPHACINUM OLEUM. Oil of unripe Olives.

OMPHACIUM, ὀμφάκιον. The Juice of unripe Grapes. The Ancients used to expose the Grapes to the Sun some Days, and then press out their Juice into large Vats; and, in the Time of *Dioscorides*, they used to let it stand open in them, exposed to the Sun, till most of the Humidity was exhale'd, and the Remainder inspissated into a Rob. This *Dioscorides*, *L. 5. C. 6*, recommends, with Honey and *Passum*, for Ulcers and Relaxations of the Tonsils, Uvula, Mouth, and Gums; and for Purulencies of the Ears; for Dysenteries, and Uterine Fluxes; in Clysters,



Clysters, or Injection. He, farther, says, it clears the Sight, and cures Asperities of the Angles of the Eyes; and that it is good for a recent Spitting of Blood, from a Rupture of a Vessel; but, in this Case, it must be taken in a small Quantity, because it corrodes powerfully.

OMPHACIS, ὀμφακίς. An Acorn-cup.

OMPHACITES VINUM. Wine made of Grapes not perfectly ripe. It is astringent, and friendly to the Stomach; good for a depraved Appetite, Ilac Disorders, Indigestion, Relaxations of the Stomach, and in pestilential Disorders; but must be kept many Years, before it is fit to be drank.

OMPHACITIS. A Sort of small Gall, or Excrescence of the Oak, mention'd by *Dioscorides*, L. 1. C. 146.

OMPHACOMELI. A Sort of Oxy-mel, made of the Juice of unripe Grapes, and Honey; the Method of preparing which is described by *Dioscorides*, L. 5. C. 31.

OMPHALOCARPOS. A Name for the APARINE. *Blancard*.

OMPHALOCLE. An Umbilical Rupture. See HERNIA.

OMPHALODES.

The Characters are;

The Calyx is monophyllous, soft, and expanded into five long slender Segments. The Flower is monopetalous, rotated, quinquefid, and expanded into large round Segments, with an Umbilicus rising in the Middle. From the lower, interior, and narrower Part of the Flower proceeds a Tube, closely surrounded by five Stamina. The Fruit consists of four hollow, umbilicated Capsules, resembling a Basket, containing one almost flat Seed, and affixed to a pyramided, quadrilateral Placenta.

*Boerhaave* mentions three Species of this Plant; which are,

1. Omphalodes; pumila; verna; Symphyti folio. T. 140. *Symphytum minimum, repens, five Borrigo minima Herbariorum*. J. B. 3. 597. *Borrigo minima*. H. Eyft. Hyem. o. 1. F. 4. Fig. 1.

2. Omphalodes; Lusitanica; Lini folio. T. 140. *Linum umbilicatum*. Park. Theat. 1687. *Cynoglossum, minus, album, lini foliis glaucis, semine umbilicato*. M. H. 3. 449.

3. Omphalodes; Lusitanica; elatior; Cynoglossi folio. T. 140. *Linum umbilicatum, folio latiori*. Ind. 78. *Boerhaav. Ind. alt. Plant.*

It has its Name, *Omphalodes*, from ὀμφαλός, a Navel, because the Calyx is excavated in the Middle, like the human Navel. It flowers very early in the Spring, bearing a shining Gold-colour'd Flower. Some have taken it for Borrigo, but the Omphalodes is not so succulent. *Boerhaav. Hist.*

OMPHALOMANTIA. A Sort of Conjuraton, or Divination, practised by Midwives, and old Women; which consists in foretelling how many more Children a Woman shall have, by observing how many Knots there are on the Umbilical Cord of one Child.

OMPHALOS, ὀμφαλός. The Navel.

ONAGER. Raii Synop. A. 63. Aldrov. de Quad. 332. Jons. de Quad. 14. Charlt. Exer. 4. *Onager five Asinus sylvestris*. Gesn. de Quad. 21. THE WILD ASS. Dale.

Some think there is no more Difference between the wild Ass and the tame Ass, than that the one is wild, and an Inhabitant of the Woods; and the other tamed, and broken for Service: Others take them for a different Species. It does not come within the *Materia Medica*; but their Skins are called, among Mechanics, *Chagrin*.

ONAGRA.

The Characters are;

The Calyx, Ovary, and Flower, are like those of the Chamænerion; but the Seeds are not downy: The Flower is rosaceous and tetrapetalous.

*Boerhaave* mentions three Species of Onagra; which are,

1. Onagra; latifolia. T. 302. *Lysimachia, lutea, corniculata*. C. B. P. 245.

2. Onagra; latifolia; flore dilutiore. T. 302. *Lysimachia, lutea, corniculata, non papposa, Virginiana, major, flore sulphureo*. H. L. 396.

3. Onagra; angustifolia. T. 302. *Lysimachia, lutea, corniculata, non papposa, Virginiana, minor*. M. H. 2. 271. H. L. 396. *Boerb. Ind. alt. Plant.*

We know nothing of its Virtues, nor why it is so called. *Boerhaave*.

ONBOU. De Lact. The Name of a West-Indian Tree, with Leaves like those of the Manga, and a Fruit like a Peach.

ONCOS, ὄγκος. A Tumor.

ONDA, in *Paracelsus*, is the Inventor of all Medicines, but especially of simple Medicines.

ONEIROCRITICUS, from ὄνειρος, a Dream, and κρίνω, to judge. A Person who forms a Judgment of the State of the Body, by Dreams. *Oneirocritice* is the Art of forming such a Judgment.

ONEIROGMOS, ὄνειρωγμός. *Cælius Aurelianus* gives us the Description of a Disorder which he calls ὄνειρφόρος, by which he means Venereal Dreams. Though this Word is not found in the Writings of *Hippocrates*, yet he uses the Verb ὄνειρώσκειν, to have Venereal Dreams; from which has been formed the Word ὄνειρωγμός, a Word used by other Authors; which lays a Foundation for suspecting, that there is a Fault in the Text of *Cælius Aurelianus*; and that, instead of ὄνειρφόρος, we ought to read

ὄνειρωγμός. This is the Opinion of *Foesius*: But *Reinesius* asserts, without assigning any Reasons for his Belief, that they are two quite distinct and different Disorders. *Cælius Aurelianus* gives his Sentiments of this Disorder in the following manner.

The Patients labouring under this Misfortune, being subjected to wild and delusive Dreams, are, during their Sleep, afflicted with an Emission of the seminal Fluid. It receives this Name, because it produces the same Effect with a real Venereal Stimulus. But, in general, it is neither a Distemper, nor the Symptom of a Distemper, but the Result of the unaccountable Impressions made upon the Fancy, affecting the Patient during Sleep, and arising either from an insatiable Desire of Venery, a continual Indulgence in Pleasures of that Kind, or, on the contrary, from a long Continence, and Self-denial in the Use of Venery. But this Disorder, when often recurring, not only frequently degenerates into a Distemper, but, also, becomes the antecedent Sign of some approaching Disease; such as an Epilepsy, Madnels, or some other Disorder of a like Nature; because it is an effectual Proof, that the Body is preternaturally affected, and, as it were, touched with a previous Sense of its future Calamity. It is, also, sometimes the antecedent Cause of what we call a *Gonorrhœa*; from which it differs, since, in the former, the Semen is involuntarily discharged during the Day, whilst the Patient is awake, and not prompted to Venery by the Workings of his Fancy; whereas Venereal Dreams, by delusive Impressions made upon the Fancy, only produce an imaginary Sense of Copulation, during Sleep. Some affirm, that the ὄνειρφόρος is different from the ὄνειργόνος, for the former produces a Sense of Copulation, without a real Emission; whereas the latter creates a Sense of Venery so strong and brisk, as to procure a real Emission. But *Milesius* affirms, that these two Disorders are not in the least different, since, in both, there is the same Discharge made from the seminal Vessels: And that the Semen is sometimes ejected, and sometimes retained, even though the Impressions made upon the Fancy, during Sleep, are the same, he ascribes to some accidental Causes. But there is no great Difference between these Disorders, nor are different Intentions of Cure to be pursued, since one and the same Method is found sufficient for removing both.

The *Oneirogonos* is, in different Patients to be treated in different Manners; for those in whom it prognosticates an Epilepsy, Madnels, or any other Disease, are to be relieved by Medicines appropriated to the particular Natures of these Disorders: Whereas those in whom this Disorder prognosticates no other of a more formidable Nature, are to be treated in the same manner with those labouring under a mild and gentle *Gonorrhœa*; for an Increase of the ὄνειργόνος, or ὄνειρφόρος, brings on a *Gonorrhœa*, because the seminal Vessels are either, by this means, render'd paralytic, or oppressed with a Defluxion of Humours from other Parts. It is, therefore, in the first Place, expedient to draw off the Workings of the Patient's Fancy from Venereal, and to fix them on other external Objects; for the Impressions made upon the Mind of the Patient, whilst awake, easily exert themselves in Dreams, when he is asleep. Besides, the Body is considerably injured by a Loss of the Semen. For this Purpose, the Patient is to lie on an hard Bed, and use retriggering Medicines; and, when he composes himself to Rest, he is to be order'd to lie on his Side, or his Belly; or a broad and thin Plate of Lead is to be laid under his Buttocks; or the Region of his Loins is to be cover'd with Sponges, immersed in a Mixture of cold Water and Vinegar, or with Substances of a cold Quality, such as Balaustines, Acacia, Hypocystis, or Pleawort, which may be either applied by themselves, or in Conjunction with Dates. Astringent Aliments, or such as are of a condensing and cooling Quality, are, also, to be used; and the Patient is to drink cold and astringent Liquors, not prepared in a delicate and luxurious manner: Then the Patient is to have his Strength restored in the common Method, and to use the cold Bath, by the Greeks called *ψυχρὰ λουσία*. Strong Frictions of the Parts affected are, also, to be used; for these Measures are sufficient to constrict and brace up the Parts: Some affirm, that a long Retention of the Urine is proper for the Cure of this Disorder, lest, by the frequent Discharge of that Fluid, the Cause of the Misfortune should be excited: They, also, order that the Patient should compose himself to Rest, with a full Bladder, that by this means he may not fall into a profound Sleep, but, being frequently awaken'd, may lose the Impressions of Venereal Pleasures, which exert themselves in Dreams, during Sleep: They, also, maintain, that by this means the urinary Bladder, being distended, compresses the adjacent seminal Vessels, and, consequently, renders them capable of retaining the Semen: Others order the Thumb to have a tight Ligature of strong Thread apply'd to it, that thus, by the intense Pain, a profound Sleep may be prevented, and the Impressions of the Mind hindered from exerting themselves in Venereal Dreams. But both these Methods are to be rejected, since Watching is highly injurious to the Patient, and an excessive Retention of the Urine often produces a Difficulty in discharging that Fluid; and by that means proves the Cause of another Disorder, instead of removing that for which it was directed. *Cæli. Aurel. Morb. Chronic. Lib. 5. Cap. 7.*

ONEIROMANTES. The same as ONEIROCRITICUS.

ONEIROPOLESIS. See ONEIROGMOS.

ONIS,



# O N O

ONIS, *ὄνις*. Affes Dung. See ASINUS.

ONISCI. MILLEPEDES; which see.

ONISCUS. Offic. *Afellus mollis major, seu albus*. Raii Ichth. 170. Ejustd. Synop. Pisc. 55. *Afellus minor & mollis*. Charlt. de Pisc. 3. *Afellus mollis*. Jonf. Tab. 2. Mer. Pin. 184. *Merlangus altera Species Afellorum*. Bellon. de Aquat. 104. *Secunda afellorum Species*. Rondel. de Pisc. 1. 276. *Secunda afellorum Species Merlangus Rondeletii*. Gesn. de Aquat. 85. *Afellus minor alter*. Ald. de Pisc. 287. THE WHITING.

It is taken in the Sea, and the Flesh and Liver are regarded in Medicine. The Flesh is universally allow'd, and found by Experience, to be very wholesome; and the Liver is recommended in a Consumption.

The Whiting is a Sea-fish, which often comes near the Shore, and is very common in many Parts, and is valued for the Goodness of its Taste, and served to the best Tables. It feeds upon small Fishes, and any thing it can find in the Sea. It is very wholesome, and the Reason is, because that it is not burdened with viscous Juices, that its Principles are exalted enough, and that it is not very compact in its Parts; which makes it light, short, and easy of Digestion.

A Whiting is a Fish that produces no ill Effects; that we know of; and there are some who have eaten of it to Excess, and yet found no Inconveniency by it: And therefore sick Persons, and those that are recovering from Illnesses, are safely allowed to eat it. *Temery on Foods*.

ONITIS. A Species of Origanum mentioned by *Dioscorides*, Lib. 3. Cap. 23.

ONOBRYCHIS.

The Characters are;

It has a cristated, or echinated Pod, full of Kidney-shaped Seed; and the Flowers are collected into close Spikes.

*Boerhaave* mentions five Species of *Onobrychis*; which are,

1. *Onobrychis major*; filiculis echinatis, cristatis, in Spica digestis. *Hist. Oxon.* 2. 131. *Boerb. Ind. A.* 2. 47. *Onobrychis*. Offic. *Onobrychis vulgaris*. Park. Theat. 1082. *Onobrychis foliis Ficiv, fructu echinato, major*. C. B. P. 350. *Tourn. Inst.* 390. *Onobrychis five Caput Gallinaceum*. Ger. 1063. *Emac.* 1243. Raii *Hist.* 1. 914. Synop. 3. 327. *Polygalon Gesneri*. J. B. 2. 335. COCKSHEAD-VETCH, or SAINT FOIN.

It grows spontaneously on the Sides of Gogmagog Hills, near Cambridge, and on the Borders of the Corn-fields thereabouts, in a plain field near Newmarket, on Salisbury Plain, and other Parts of England, but always in a dry, chalky Soil, and Places exposed to the Sun. This Plant has been of late Years cultivated among us, for the sake of feeding Cattle, by the Name of *Saint Foin*, that is, *Holy Hay*; the Seed being brought over from France. It has been of vast Profit to many, being found, by Experience, to generate Plenty of Milk in Cows, and other Animals; whence it justly deserves the Name of *Polygalon*, given it by *Gesner*: Besides, it delights in a barren and chalky, and pretty dry Soil, which will not well bear Grass nor Corn: Whence the yearly Rents of Lands of this kind have been increased manifold.

It flowers in June and July, and the Herb is in Use, which, according to *Dioscorides*, being bruised and apply'd, dissolves Tumors; taken in Wine, cures the Strangury; and rubbed, on the Skin, with Oil, provokes Sweat. *Dioscorides*, Lib. 3. Cap. 170.

Though the Plant, says *Dale*, which, in Agreement with *Clusius*, *Thalus*, and others, I have presented you with, as the *Onobrychis* of *Dioscorides*, be called by *Gesner* *Glaux*, by *Lobel* *Caput Gallinaceum*, by *Cesalpinus* *Lupinus*, by *Dodonæus* *Vicia*, and by *Lugdunensis* *Polygala*; yet it is described by *Dioscorides*, as having Leaves generally longer than those of the *Lens*, a Stalk nine Inches in Length, a scarlet Flower, with a small Root; and, by *Pliny*, with Leaves a little larger than those of the *Lens*, a red Flower, and a small and slender Root. And, tho' both these Descriptions are short, yet they agree better with this Plant, than with the *Campanula arvensis*, to which it is refer'd by *C. Baubine*, in his Pinax. It is not certain, however, what Herb it is, some giving the Name of *Onobrychis* to the *Ruta sylvestris*; others to the *Galega*; others, again, to the *Hedysarum*; and others to other Plants: Besides, *Cornarius* thinks the *Onobrychis*, and *Onoperdon*, to be the same. *Dale*.

2. *Onobrychis*; minor; filiculis echinatis, cristatis, majoribus & crassioribus aculeis præditis, donata. *M. H.* 2. 131. *Caput Gallinaceum, minus*. C. B. Prodr. 149.

3. *Onobrychis*; seu Caput Gallinaceum, minus; fructu maximo insigniter echinato. *Lact. Triumfett. apud fratrem*, 65.

4. *Onobrychis*; laxatilis; foliis Viciæ angustioribus, & longioribus; Aquilexientis. *T.* 390.

5. *Onobrychis*; Cretica; foliis Viciæ; fructu magno, aculeato, & cristato. *T. C.* 26. *Boerb. Ind. alt. Plant.*

It is called *Onobrychis*, from *ὄνις*, an Ass, and *βρύχων* (*brycho*) to bray, because the Smell of this Plant makes Asses bray, or because, when an Ass eats these Pods, he is always said to bray. *Hist. Plant. adscript. Boerhaav.*

ONOBRYCHIS is, also, a Name for several Sorts of HEDYSARUM.

ONOCITES. See ANCHUSA.

ONOCLEA. A Species of *Anchusa*, which *Paulus Aegineta*,

# O P H

Lib. 7. Cap. 3. describes as having an astringent, and bitterish Root.

ONOCROTALUS. The Pelican, an aquatic, web-footed Fowl, as large as a Swan. The Fat is esteemed emollient, and resolvent.

ONOSOLAT, according to *Blancard*, is an Arabic Word, importing half a Scruple.

ONONIS. See ANONIS.

ONOPERDUM. A Name for the *Carduus*; *tomentosus*; *Oenanthi folio, angustiore*.

ONOPTERIS. See ADIANTHUM NIGRUM.

ONOS. See ASIRACUS.

ONOSMA. Offic. J. B. 3. 586. *Lycopsis*. C. B. P. 255. Raii Synop. 3. 227. *Lycopsis Anglica*. Ger. 658. *Emac.* 802. Park. Theat. 519. *Echium alterum*. Merc. Bot. 1. 31. Phyt. Brit. 35. *Echium alterum seu Lycopsis Anglica*. Mer. Pin. 33. *Echium ramosius annuum flore suave-rubente*. *Hist. Oxon.* 3. 441. STONE-BUGLOSS.

*Onosma*, which some call *Osma*, others *Phlonitis*, and others *Ononis*, has Leaves like those of *Anchusa*, oblong, soft, four Digits in Length, and one in Breadth, lying on the Ground, and mightily resembling the Leaves of *Anchusa*; it has neither Stalk, Seed, nor Flower. The Root is somewhat long, weak, slender, and moderately red; it grows in rugged Places.

The Leaves, taken in Wine, expel the Foetus; and they say, that, if a pregnant Woman only treads upon this Herb, she afterwards miscarries. *Dioscorides*, Lib. 3. Cap. 147.

The Herb was observed, by the learned Dr. *Sherard*, growing in the Island of *Fersey*.

The *Onosma* is one of those Plants which have caused Divisions among Authors in Botany, who are not agreed whither to refer them. *Dioscorides*, in describing the *Onosma*, as having Leaves like *Anchusa*, but without Stalk, Flower, or Seed, has given great Occasion for Dispute. This Error of *Dioscorides* seems to proceed from his having observed it only in the first Year, after its Appearance above Ground, when it shoots forth nothing but Leaves, after the manner of the *Cynoglossum*, *Buglossum*, *Echium*, and other Plants of that kind; to which I should have refer'd it, if *Dioscorides* had not treated of them in distinct Chapters. It is, however, a vulgar Error, which others, also, have fallen into; for how is it possible for a Plant to be produced without Fruit or Seed? I chose to reduce it to this Plant, rather than another, from the Cut which *J. Baubine* has given us of it, and from the Likeness of its Leaves to those of *Anchusa*.

ONYX. Offic. Worm. 97. Aldrov. Mus. Metal. 915. De Lact. 62. Charlt. Foss. 34. Kentm. 49. *Onyx & Camebna*. Boet. 241. *Onychites*. Schw. 386. *Lapis Onyx diffus five Unguis Humani candorem referens*. Cap. Hort. Cath. Supp. 2. 50. THE ONYX-STONE.

It is an opaque, or not very lucid Gem, of the Likeness, Colour, and Splendor of the human Nail, being, at least, of two Colours, white and black, which appear in two distinct Zones, and rather opaque, than diaphanous. *Pliny* calls the black Part of it *Morion Indicum*, or *Pramnion*, which, perhaps, is the *Morion* of *Schwenkfeld*.

As to its Virtues, it is supposed to induce Tranquillity of Mind by composing the Passions, and to quicken the Senses.

OOFIDES. An Epithet for the aqueous Humour of the Eye.

OOGLA. A Mixture of Milk, and Eggs.

OPALUS. Offic. Boet. 190. Calc. Mus. 207. Geoff. Prælect. 83. Kentm. 47. De Lact. 52. Aldrov. Mus. Metall. 978. *Opalus olim Pederos*. Worm. 107. *Opalus seu Opalis*. Charlt. Foss. 40. THE OPAL.

*Opal* is a beautiful Gem, of almost all Colours: According as the Rays of Light are refracted thro' it, it appears blue, purple, green, yellow, red, milky, and black; and hence it has been, by some, called the Gem of Gems. The best Opals are found in India, the more ordinary Sort in Cyprus, Egypt, Hungary, and in some Danish Islands. They all grow in a soft Stone, marked with black or dark Lines. It is said to have the same Virtues with the rest, but is never used in the Shops. *Geoffroy*.

OPEREMETHIOLIM. The Spirit of Minerals. *Rulandus*.

OPHIASIS. A Species of Baldness. See ALOPECIA.

OPHIDION. A sort of short Sea-serpent, which is esteem'd aperitive, and good to purify the Blood.

OPHIGENIUM. A Name in *Oribasius*, *Collect. Medic. Lib.* 1. for the *Elaphoboscum*, or *Sisarum Germanorum*.

OPHIOGLOSSUM.

The Characters are;

It has but one Leaf; and the Fruit, which is lingulated, or like a Tongue, is divided into many Capsules, situated in a double Order, and full of Seed.

*Boerhaave* mentions but one Species of this Plant; which is the *Ophioglossum vulgatum*. C. B. P. 354. *Tourn. Inst.* 548. *Boerb. Ind. A.* 27. *Ophioglossum*. Offic. J. B. 3. 708. Ger. 327. *Emac.* 404. Raii *Hist.* 1. 126. Synop. 44. *Ophioglossum five Lingua Serpentina*. Park. 506. ADDERS-TONGUE.

This is a small tender Plant, about four or five Inches high, consisting of a single thick green Leaf, smooth, and without Ribs, or large Veins, of an oval Shape, but sharp-pointed at the End,



End, from the Bosom of which arises a Stalk about two Inches high, bearing on the Top a slender crenated Tongue, about an Inch long, in which is contained the Seed, so small, that it is hardly visible. The Root consists of several matted Strings, or Fibres; it grows in moist Meadows, and is in its Prime in May; the Leaf soon perishing by the Summer Heat, and the Root remaining in the Earth.

Adders-tongue is a good vulnerary Plant, both given inwardly, either in the Juice, or Powder, for Bruises and Wounds; and outwardly boiled in Oil, for fresh Wounds, Ulcers, Bruises, and Inflammations. *Miller's Bot. Off.*

*Dodonæus* says, that *Baptista Sardus* pretended to cure Ruptures by the Use of the Powder of this Herb, and all Sorts of Wounds, by the Oil made by Infusion. *Martyn's Tournefort.*

The fresh Leaves conglutinate Wounds, and cure an Enterocoele; for inward Wounds it is exhibited in Water of *Equisetum*. *Baptista Sardus* affirms, that the Powder of the Herb, exhibited for some Days, is of sufficient Efficacy for the Cure of all Sorts of Hernia. The Oil, prepared of the Leaves macerated, for a considerable time, in Oil of Olives, or Omphacinum, exposed to the Sun, or, which is a shorter Way, boiled over the Fire, till the Leaves become dry and juiceless, and then expressed, is reckon'd one of the best Remedies, not only for recent Wounds, but for old Ulcers, and an Hernia; especially, says *Parkinson*, if a small Quantity of Oil of Turpentine be dissolved in it.

*Mentzelius* found a great Difference in the Size of the *Ophioglossum*, about the Town of *Furstenwald*. The least rises not above an Inch with its Tongue and Leaf; the middle-sized has a Leaf of two Inches, and a Tongue above three Inches in Length; the largest has a Leaf four Inches in Length, and one and an half in Breadth, with a Tongue in proportion; in the same Place he met with *Ophioglossa* of three Tongues, and two Tongues. The Farmers of the *Valedo* bruise it, and put it into boiling Butter, which, thus used, will keep two or three Years, as an Ointment, wherewith, after milking, they anoint their Cows Teats, which are chapt, or sore. *Raii Hist. Plant.*

The Name *Ophioglossum* is from *ὄφις*, *Ophis*, a Serpent, and *γλῶσσα*, *Glossa*, a Tongue, because the Fruit of this Plant resembles the Tongue of a Serpent. The Plant is vulnerary, consolidating, and resolvent; and is effectual for inflamed Wounds and Hæmorrhages. *Cæsalpinus* commends an Ointment prepared of this Plant, for an *Hernia* in Infants. Many strange Things are reported of this Plant, as that, by virtue thereof, a Person shall be preserved from evil Spirits, and Infection by Poison, with other wonderful Effects, which none is bound to believe. *Hist. Plant. adscript. Boerhaav.*

OPHIOSCORODON. Viper's Garlick, or Rocambole. See ALLIUM.

OPHIOSTAPHYLON. A Name for the *Vitis Alba*, or *Bryonia Alba*. *Oribasius, Medic. Collect. Lib. 11.*

OPHITES & SERPENTINUS. Offic. *Ophites*. Charlt. Foss. 18. Worm. 43. Schrod. 354. Aldrov. Mus. Metall. 752. *Ophites veterum*; *Serpentine recentiorum*. Boet. 501. *Lapis Ophites*. Matth. 1389. THE SPLEEN-STONE, or OPHITE.

It is a very hard Sort of Marble like Porphyry, of a deep-green Colour, interspersed with some fainter Spots of the same. *Dale*. But we are told by *Dioscorides*, that one Species of this Stone is ponderous and black, another Ash-coloured and spotted, and a third distinguished by white Lines. All of them, worn as Amulets, are effectual against the Bites of Serpents, and the Head-ach; that with the white Lines, in particular, is said to cure the Lethargy, and Pain of the Head. *Dioscorides, Lib. 5. Cap. 162.*

OPHRIS. See BIFOLIUM.

OPHRYS, ὀφρύς. The lowest Part of the Forehead, where the Eye-brows grow; and the Hair of the Eye brows.

OPHTHALMIA, ὀφθαλμία, from ὀφθαλμός, an Eye. It sometimes signifies any Disorder, or Pain of the Eye; but it is used strictly to express an Inflammation of this Organ. *Monsieur de St. Yves*, a celebrated French Oculist, thus distinguishes the several Species of Ophthalmies, and directs the following Methods of Cure for each Sort.

An Ophthalmia, says he, is an Inflammation of the Conjunctiva, sometimes attended with violent Heat, and a Flux of Tears, sometimes without either Heat or Tears. This Inflammation sometimes extends over all the Globe of the Eye, and even to the adjacent Parts. Of all Disorders of the Eye, this is the most frequent, as it accompanies almost every Disease to which the Eye is subject.

Some of these Inflammations are without Danger, and easily cured; others are very dangerous, and difficult to cure. Their Cause is either external or internal. Internally they proceed from the Blood, whether from too great a Redundancy, or some acquired bad Quality of it; such are the Thickness, Viscosity, Acrimony, or too great Rarefaction, of the Blood.

If the Quantity of Blood be excessive, it will be carried too copiously into the minute Vessels of the Eye, and so produce an Ophthalmia.

If the Blood be too thick, as it is incessantly conveyed into the fine Vessels of the Eye, its Particles being too heavy and large to pass into these Vessels, the Circulation, in these Parts, must

be obstructed, and an Inflammation generated. When the Blood is too sharp, the Serosity, furnished by the lachrymal Gland, will partake of the same Nature, and by irritating the Conjunctiva, which it constantly moistens, will produce an Ophthalmia. If the Blood be too much rarefied, as the Rarefaction affects the fine delicate Vessels of the Eye, it will occasion an Inflammation.

As to external Causes, it is evident, that whatever can violently irritate the Conjunctiva, and the Membrane which covers it, or can make a Separation in the Vessels of those Parts, will necessarily cause this Distemper.

An Ophthalmia is sometimes attended with very dangerous Accidents; it is often exasperated by improper Remedies, apply'd by the Patients, when first attacked; it is sometimes so violent, that its Progress can hardly be stopped, or the Sight preserved.

These Inflammations are generally divided into the dry and humid: But I shall add some others; for I have observed different Symptoms in each particular Species, as will appear in the Sequel.

#### The DRY OPHTHALMIA.

This Species brings a Redness on the Eye without Tears, or any purulent Matter. It occasions no Swelling of the Eye-lid, nor Pain in the Eye, or in the Head. It is caused by a thick Blood, which stagnates only in some of the Vessels of the Conjunctiva, only Part of the White of the Eye being red.

#### The HUMID OPHTHALMIA.

This Sort is produced by a great Quantity of Lachrymal Lymph, which, as it passes continually over the Globe of the Eye, irritates the same by its Acrimony, inflames it, and the inner Part of the Eye-lids, which become swelled; it, likewise, often ulcerates the transparent Part of the Cornea. This Disease is attended with shooting Pains in the Eye, and the Patient cannot behold the Light without intense Pain. Children, and old People, are both subject to this Disease, in whom it becomes very obstinate, by reason of the natural Moisture of their Temperament. When it runs to a Length in Children, their Lips and Noses swell, and are covered with Scabs and Pustules, that sometimes overspread the Face.

#### The OPHTHALMIA, from a DEFLUXION of the BRAIN.

In this Species an Itching is excited in the Eye, a thick glutinous Matter issues out, and conglutinates the Eye-lids in the Night. This Kind is most easily cured.

#### The OPHTHALMIA, attended with dry FILM.

This resembles the first dry Sort; the Conjunctiva is red, and the Eye-lids are smeared with dry Film like gritty Flour, Part of which falls on the Globe of the Eye; and the Patients think there is something in it, which is very troublesome, and makes the Conjunctiva appear red.

#### The OPHTHALMIA in the GLOBE of the EYE towards the ACANTHI.

This fifth Kind is when the Patient's Eyes are red only towards the Angles, while the upper and lower Parts of the Globe are not at all affected; when the Caruncula Lachrymalis becomes inflamed, the Vessels which pass under it, swell even to the transparent Part of the Cornea. This Disease often changes to the Unguis. See OCULUS.

#### The OPHTHALMIA, with PIMPLES on the GLOBE of the EYE.

In this Species there is a Swelling of the small Plexus or Bundles of Veins, which are sent from the inner Surface of the Eye-lids, and terminate where the Conjunctiva is joined with the transparent Part of the Cornea; a Pimple, as big as a Lentil, appears in that Place. Sometimes the Redness is continued to the Cornea, and, at its Extremity, whitish Pus may be seen. It is evident, that the Matter producing these Pimples, issues thro' the Ends of the aforesaid Vessels. This Disease can only be cured by piercing the Pimple, or discussing the contained Matter.

#### The OPHTHALMIA, with LITTLE ABSCESSSES on the CORNEA and CONJUNCTIVA.

In this seventh Species all the Conjunctiva becomes red, with small Abscesses, seated partly on the transparent Cornea, and partly on the Conjunctiva. Sometimes there are five or six of them round the Eye; they are sometimes as big as a Pin's Head; and sometimes as big as a Lentil.

#### The ERYSIPELATOUS OPHTHALMIA.

This eighth Sort reddens the Conjunctiva, swells the Eye-lids, and causes violent Pains and Heat both in the Eyes and Head. The adjacent Parts, as the Temples, the Forehead, and the Nose, are covered with Scales and Scabs, that leave, when they fall off, Marks for Life, resembling those of the Small-pox.



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## *Of the OPTHALMIA, called CHEMOSIS.*

In this ninth Kind, all the Conjunctiva is swelled to the Thickness of a Finger's-breadth; this makes the transparent Part of the Cornea appear, as it were, sunk in a Cavity. This Inflammation is attended with violent Pains in the Head and Eye, with Heaviness over the Orbit, and with Want of Sleep; there is, likewise, a Fever, Pulsation, and the like. All the transparent Part of the Cornea often comes away by Suppuration, which destroys the anterior Chamber of the Eye. The Cicatrix, subsequent to the Suppuration, hinders the crystalline and vitreous Humours from falling out; and, by that means, the entire Decay of the Globe is prevented: Sometimes both happen.

This Species of Ophthalmia is often the Consequence of a Stroke received in the Eye, or in the adjacent Parts. At other times it comes without any external Cause preceding the Disease. It may be caused by a critical Transfusion, after a malignant, or other Fever.

A Lady, who got a Pleurisy by riding in the Rain, not being ordered to be let Blood by the Country Physicians, there ensued an Ophthalmia of this Sort, upon which the Pleurisy abated; but the Fever, and Inflammation of the Eye, still continuing, it soon turned to an Abscess. The other Eye was seized, about the twentieth Day, with the same violent Symptoms. When the Patient was in a Condition to be removed, she came to Paris to consult me. Having examined her Eyes, I found the first I mentioned, was entirely lost, and the other was covered with a Cicatrix, which I took off by proper Remedies; so that she can now see enough to find her Way.

## *Of the VENEREAL OPTHALMIA.*

This tenth Sort has almost the same Phenomena with the last, with this Difference, that the Conjunctiva, which is swelled, appears hard and fleshy. It begins thus: A great Quantity of whitish Matter, with a yellowish Cast, issues through the Eye. This Disease, which proceeds from a Venereal Cause, is very rare: Yet I have seen several attacked with it. In most of them, this Disease appeared two Days after the Beginning of a virulent Gonorrhoea; the Matter, not running off by its usual Passages, was removed to the Eye; whence there flowed a like Matter, which stained the Linen in the same manner, as when it passed through the usual Channels.

## *The OPTHALMIA of the CHOROIDES.*

In this eleventh Species the Choroides and Uvea are inflamed, and the Conjunctiva only lightly; it is attended with a Flux of Tears. The looking at the Light is painful to the Patient, who feels acute Pains towards the Top of the Head and the Temples.

## *The OPTHALMIA, from STROKES on the EYE.*

The Violence of the Stroke, or the Shape of the Instrument, makes all the Variation found in this Disease.

## *The OPTHALMIA, from the RUPTURE of the VESSELS of the CONJUNCTIVA.*

In this thirteenth Species, the Eye grows very red, though the Patient feels no Pain, neither is the Light uneasy to him. It is caused by the Rupture of some Blood-vessel of the Conjunctiva, which occasions an Effusion of Blood between the Laminae of that Membrane.

## *Of the PROGNOSTIC of OPTHALMIAS.*

The Symptoms of all Ophthalmias are not alike to be feared, or accompanied with the same Danger. The humid Ophthalmia is dangerous, either on account of its Duration, or of its Returns, or of the Acrimony of the Lymph, that excoriates and ulcerates the transparent Part of the Cornea; it, likewise, destroys Part of the Sight, by the Cicatrices which remain after the Ulcers.

The Erythematous Ophthalmia is dangerous, because of the violent Pains which it causes, besides the considerable Damage it does to the Sight.

The Chemosis is very fatal, by reason of the Pains which follow it, and often the very Loss of Sight. The Venereal Ophthalmia is equally dangerous.

The Ophthalmia of the Choroides, and the Uvea, is very dangerous; for it often destroys the Sight, or else generates a membranous Cataract.

The Ophthalmia from Strokes on the Eye is more or less dangerous, according to the Parts which are damaged by the Stroke.

The Ophthalmia subsequent to Strokes on the Head, by which the Meninges have been hurt, is a Sign of Death.

When in the Beginning of the Small-pox the Eyes are, as it were, filled with extravasated Blood, it is, also, a mortal Sign; for it denotes, that the Blood is carried with Violence to the Head.

The other Species of Ophthalmias are, in general, not dangerous; being, for the most part, free from any fatal Symptoms. A Diarrhoea cures an Ophthalmia, according to Hippocrates.

## *Of the CURE of OPTHALMIAS.*

The general Remedies are, Bleeding, to lessen the Quantity of Blood; Purging in some Cases, which would, in other Cases, be prejudicial. The Spots, Ulcers, and certain Abscesses, of the

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transparent Part of the Cornea, attended with an Inflammation of the Conjunctiva, are more speedily cured by Bleeding in the Eye, than by any other Means; though in some Cases it is not proper. See the Methods of performing this Operation, under the Article OCULUS.

## *The CURE of the DRY OPTHALMIA.*

For some Days wash the inner Part of the Eye with a Collyrium, made of twelve Grains of prepared Tutty, dissolved in two Ounces of Rose and Plainain-waters, with the Addition of a Spoonful of Spirit of Wine. Take of *Paul's Betony*, Thyme, and Red Roses, each a Pugil; two Stalks of Mullein: Boil them in a Gallon of Wine; and, at Night, apply to the Eye a Compress dipt in this Wine.

As this Species of Ophthalmia is not dangerous, it requires but few Remedies; and is sometimes cured by Bleeding, repeated according to the plethoric Constitution of the Patient.

## *The CURE of the HUMID OPTHALMIA.*

This Species is sometimes very difficult to cure, and requires more Medicines than the last, besides such Repetitions of the general Remedies, as the State of the Patient may require.

Bleeding at the Neck, and in the Foot, is often necessary. Apply a Collyrium, made with the distilled Waters of Fennel, Eye bright, and Plantain, of each two Ounces; in which dissolve two Grains of Salt of Lead. Sometimes we are obliged to use a Seton, a Caustery, and Blisters. If the Vescicatories incommode the Kidneys or Bladder, they must be laid aside, and other Means employ'd. If the first Collyrium, which is design'd only as a Sweetener, after some Days, does not succeed, let another be substituted, which, by constringing the Pores, will hinder the great Afflux of Tears to the Eye; for which Reason you may omit the Salt of Lead, and dissolve, in the same Waters, half a Dram of the white Troches of *Rhafs*. When the Flux of Humours has ceased, if any Ulcer remains, as often happens, on the transparent Part of the Cornea, make use of a Dissolution of the *Lapis Divinus* in common Water.

To make this Stone, put of Alum, Salt-petre, and Vitriol of *Cyprus*, each a Pound, into a glazed earthen Vessel; then place the Vessel in a Furnace, and surround it with Charcoal, till it comes half an Inch above the Bottom of the Vessel; and set Fire to it. As you see the Materials melt, stir them with a long small Stick; and, when they are raised in the Ebullition about three Fingers-breadth, let the Vessel be taken from the Fire, and throw in two Drams of Camphire, continuing to stir the Whole, till the Camphire is entirely dissolved; then cover the Pot, as quick as you can, luting its Junctures with some Rolls of firm Paste, a Foot long, and half an Inch thick. Leave it so for twenty-four Hours; then break the Pot, and separate the Stone, which put into a Glass Vessel, closely stopp'd.

The Dose is from twelve Grains to half a Dram, dissolved in half a Pint of common Water: The Dissolution of two Drams of Sugar-candy, with a Spoonful of Brandy, may be added.

When the Ulcer is cicatrized, if this Remedy does not entirely remove the Spot, make use of the Powder of Cuttle-bone and Sugar-candy mix'd together; drop about the Bigness of a Lentil of this Powder, every Morning, on the Spot. We must sometimes have recourse to more powerful Remedies; such are, Oil of Linen, and Powders in which Alum is an Ingredient.

Humid Ophthalmias are often attended with scrophulous Tumors, as appears from the Swelling of the Glands about the Neck.

In this Case, we must use Remedies that can eradicate the Cause of this Disease, which otherwise will destroy the Eyes by the Ulcers and Spots, which succeed it; for which Reason, besides the foresaid Remedies, the following Pisan must be prepared.

Take of *China* and Burdock-roots, sliced, each one Ounce; boil them in five Pints of Water, to half the Quantity; add an Handful of *French Marigolds*, and some Liquorice. The Patient must drink, every Day, about three Half-pints of this Pisan, two in the Morning, and one in the Afternoon, to be continued for a Month. Let him take thirty Grains of *Aethiops Mineral*, three Days successively. Let him be purged, the fourth Day, with a very brisk Purge; still taking care, that it be suited to the Disease, and the Patient's Constitution. Then let him rest four Days, without taking any *Aethiops*; afterwards renew the Use of the *Aethiops*, for three Days; and let him be purged again, which must be continued, till he is perfectly cured.

The Dose of the *Aethiops* must be increased, by little and little, to a Dram; for, when it is given in too small a Quantity, it has not its full Effect, nor does it answer the End expected from it: Regard must still be had to the Patient's Age, Temperament, and the like Circumstances.

## *The CURE of OPTHALMIAS, from a DEFLUXION.*

After the general Remedies, the Ointment of Tutty must be used; every Night, about the Bigness of a Lentil of it, when the



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the Patient goes to Rest, must be put in the Corner of his Eye, towards the Nose, so that it may enter into the Eye. The Eye must be washed with warm Water and Brandy, ten Parts of the first to one of the last. If the Angles of the Eye-lids, which are often ulcerated, do not cure with the Ointment of Tutty, a Dissolution of Lapis Divinus must be used.

## *The CURE of the OPTHALMIA, with FILM.*

Let Sal Ammoniac, and Sugar of Lead, of each seven Grains, be dissolved in Rose and Plantain-waters, of each four Ounces; with which the Eye must be bathed three or four times a Day.

## *The CURE of the OPTHALMIA in the GLOBE of the EYE, towards the ANGLES.*

Use a Collyrium made of white Vitriol, and Florentine Orice, of each one Dram; infused in two or three Pints of Water, according as it is required, stronger or weaker.

## *The CURE of the OPTHALMIA, attended with PIMPLES.*

Make use of a Dissolution of the Lapis Divinus in common Water, when the Pimples lie only on the Conjunctiva; but if they are spread on the transparent Part of the Cornea, and Pus appears between the Pellicles of that Membrane, then Remedies, proper for Abscesses of the Eye, must be applied; which are mentioned below.

## *The CURE of the OPTHALMIA, with little ABSCESSSES on the CORNEA and CONJUNCTIVA.*

Apply between the transparent Part of the Cornea and the Conjunctiva, where the Abscesses are formed, Remedies proper to open them, and likewise to cicatrize them; for the Inflammation and Violence of the Disease do not abate, till the Matter is discharged.

First, then, apply the distilled Water of Camphire; as soon as it begins to penetrate, use a Dissolution of Lapis Divinus in common Water; it will cleanse and cicatrize the Ulcers.

## *The CURE of the ERYSIPELATOUS OPTHALMIA.*

This Species is difficult to cure. First apply the distilled Water of Elder-flowers, with a tenth Part of Brandy; warm it, and bathe the Eye with it. You must likewise have recourse to a Seton, to Bleeding in the Arm, in the Neck, and in the Foot; afterwards, Purgings and Blisters, if necessary, must be employ'd.

## *The CURE of the OPTHALMIA, called CHEMOSIS.*

The Violence of this Disease requires a speedy Cure; for which Reason, as soon as the Derivation on the Eye is perceived, the Patient must be let Blood, the first Day, twice in the Arm; the next Day, let him be purged briskly; and the same Night, if the Symptoms continue, let him be blooded in the Foot; the Day after the Purge, let him be blooded in the Neck. This Disease, with regard to the Eye, is the same as the Pleurisy, with regard to the Breast; for the Blood has the same Colour and Quality in both Cases. Let a large Blister be laid to the Patient's Shoulders. In the Beginning, Poulitices are generally applied; but that Method is very pernicious; for the Weight of the Cataplasms is troublesome, and rather tends to bring the Matter to a Suppuration, than to discuss it; whereas the proper Remedies are such as can mitigate the Inflammation, and carry off the Matter that causes it by Perspiration; such is Brandy, mixed with a great deal of warm Water. The Eye must be washed often with this Mixture. Let a Dram of Diaphoretic Mineral, fresh-made, be mix'd in two Pints of common Pilsin; the Patient must drink this Quantity in a Day and an half. If the Purge gives Ease, let it be repeated again in two Days; and, if the Eye seems disposed to a Suppuration, apply a resolvent, discutient Medicine, to prevent it. Take Sage, Rosemary, Hyssop, and red Roses, each a Pungil; boil them, for three or four Ebullitions, in half a Pint of red Wine; dip Compresses in it, and lay them to the Eye, taking care not to press it too much with the Bandage. If a Whiteness appears in the transparent Part of the Cornea, drop some of this Wine into the Eye, three times a Day; wet the Compresses, as it grows dry. If, by these means, the Swelling of the Eye ceases, and the Globe does not come to a Suppuration, or if the Matter of the Suppuration be resolved and discussed without injuring the Eye, then make use of the distilled Water of Camphire; it must be dropped, from time to time, into the Eye, till all the Redness goes off. If the Eye, as often happens, remains weak, instead of this Water, I use a strengthening Water, which restores the Eye to its first State. We are sometimes obliged to open the Abscess with a Lancet, lest the Stagnation of its Matter might destroy the Parts of the Eye which inclose it. The Manner of performing that Operation we shall shew presently in the Abscess of the Eye.

## *The CURE of the VENEREAL OPTHALMIA.*

This requires as speedy Help as the preceding Species. The Patient must be blooded in the Foot, to make a Revulsion of the Humours from the Eye; he must likewise take the Panaceum Mercuriale; he must bathe at home Morning and Evening; he must be purged from the first Day of his Bathing, which sometimes must be repeated several Days successively; he must take the Panaceum every Night; his Eye must be washed every Morn-

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ing, with a Mixture of Water and Brandy; Compresses, wetted in the Wine mention'd above, must be constantly kept to his Eyes. By this Method, the Disease, if taken in time, will soon be cured; otherwise the Eyes will perish, or very little Sight will remain after the Cure.

## *The CURE of the OPTHALMIA of the CHOROIDES.*

The Cure of this Species is the same as that of the Chemosis, with this Difference, that two Drops of the distilled Water of Camphire must be put into the Patient's Eyes every two Hours.

## *The CURE of the OPTHALMIA, from Strokes on the EYE.*

As in this Species there is always some extravasated Blood, it is necessary to apply anodyne discutient Medicines; such as Pigeons Blood, which must be dropt into the Eye twice a Day; Compresses steep'd in warm Wine, mixed with some Drops of the Balsamum Commendatoris, must be laid to the Eye-lids; Bleeding must be repeated once, or oftener, as the Disease seems to require it. The Eye must be washed, three times a Day, with a Mixture of Aqua Vulneraria, one Spoonful in five Spoonfuls of the distilled Water of Eye-bright. Other Remedies may be afterwards used; still having due Regard to the State of the Eye, and to the Symptoms subsequent to the Stroke.

## *The CURE of the OPTHALMIA, from the RUPTURE of the VESSELS of the CONJUNCTIVA.*

This Species is commonly cured by dropping Pigeons Blood into the Eye, three times a Day; and afterwards applying a Compress, wetted in the Vulnerary Water, which must be taken off, when it grows dry: Then let fall some Drops of this Water into the Eye, to clear it of the Pigeons Blood. The White of the Eye, from red, at first becomes yellow, and afterwards recovers its natural Whiteness.

## *Of the OPTHALMIA, subsequent to the SMALL-POX.*

The Small-pox causes four Sorts of Diseases in the Eyes; the Inflammation of the Conjunctiva, the Fistula Lachrymalis, the Abscess of the Cornea, and Ulcers in the Eye-lids. All these four are sometimes united, and sometimes there is only one. In the Course of the Small-pox, the Face and Eye-lids swell, the Eyes redden, and a glutinous Matter issues out of them; this glews the Eye-lids together, so that, when Care is not had to loosen them, they remain shut several Days. This Humour, thus confined between the Eye-lids and the Globe, becomes acrid, and, by that means, may ulcerate the transparent Part of the Cornea, and injure the Sight considerably.

When the Pustules of the Small-pox, in the other Parts of the Body, suppurate, they cicatrize; but the Pustules on the Edge of the Cartilage of the Eye-lids, between the Cilia and their internal Surface, do not cicatrize, by reason of the acrimonious Serosity, which incessantly moistens the Eye. Hence follow Ulcers, which continue, sometimes, several Years, and even during Life, if they be not remedied.

There are two Sorts of Ulcers caused by the Small-pox in the Eye-lids; some are attended with a sort of fungous Flesh, which retards their Cure, till it be consumed. Others undermine the Glands that separate the Film, and so corrupt that Humour, which, by sticking to their Surface, contributes very much to prolong the Ulcers; in Length of Time, it makes the Eye-lashes fall off.

The third Accident, caused immediately by the Small-pox, proceeds from a viscid Humour, collected and lodged between the Globe and the Eye-lids, when they have been kept shut too long. This Humour enters the Lachrymal Points, passes into the Lachrymal Bag, creates an Obstruction in the nasal Chanel, and so produces a Fistula Lachrymalis.

The fourth Accident commonly happens twenty Days after the Small-pox, and sometimes in the Height of the Disease; it is caused by a Pustule, which appears in the Middle of the transparent Part of the Cornea, between its Pellicles; the Hardness of the Cornea hinders the Pustule from coming out, unless it be superficial; then the Pustule penetrates inwardly, and, by that means, generates an Abscess; or else the Matter is extravasated between the Pellicles, congeals, hardens, and forms a Spot in that Part.

Besides these Accidents, sometimes a violent Defluxion supervenes, when the Patient, after all the Pustules are cured, comes to take the Air. As the Pores of the Skin are exposed to the Air, they are, as it were, closed by it, so that the Perspiration of the Residue of the saline Humour, which passed through the Ulcers of the Skin, is hindered by this Obstruction of the Pores. This Humour, thus obstructed, returns into the Vessels, is discharged on the Eyes, and generates an humid Ophthalmia, attended with an Humour so corrosive, that it excoriates the Skin of the Face.

## *OF REMEDIES for the OPTHALMIA, subsequent to the SMALL-POX.*

Here I must refer the Reader to the Cure of the humid Ophthalmia; I shall only add this Caution: During the Small-pox, use a Collyrium made of Saffron, and the distilled Waters of Roses and Plantain; and the distilled Water of Camphire, if applied in the Beginning, prevents all these Disorders. It suffices to put some



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some Drops of it into the Eye, three or four times a Day; and, to hinder the pleving of the Eye-lids, which is of great Consequence, dip a Feather in this Liquor, and draw it between the Eye-lids several times in the Day and Night.

The Remedies for the Pustules of the Small-pox, on the transparent Part of the Cornea, are under the next Head; and those for the Fistula Lachrymalis, see under that Article.

In Ulcers on the Edges of the Eye-lids, Ophthalmic Waters are, generally, of little Service; but I have found from my own Experience, that, by touching them with the Lapis Infernalis, they cicatrize easily. The violent Heat of the Caustic must be abated, as soon as they have been touched, by washing the Eye in a small Glass full of warm Water. But, above all, Care must be taken, that the Part of the Eye-lid, which was cicatrized, may not bear against the Globe of the Eye, till the Pain is entirely gone off. They may be touched, in this Manner, once or twice a Week, till they seem to require no more Use of the Caustic; then lay on these Places, Morning and Evening, Tutty reduced to a very fine Powder; it will cicatrize them. We are to observe, that these Ulcers, which lie deep, are more difficult to cure, than those attended with fungous Flesh.

## Of the Abscess of the Eye.

This Disorder may be seated in different Parts of the Eye; sometimes on the transparent Part of the Cornea; at other times, between the Conjunctiva, and the opaque Part of the Cornea; and often on the Uvea.

By Abscess I understand a Collection of Pus, whether it be great or small. When the Abscess is in the transparent Part of the Cornea, as often happens after the Small-pox, it is soon known from a Whiteness which attends it: But when it begins between the opaque Part of the Cornea, and the Conjunctiva, it may be known from the Swelling of the Eye, which is more tumefied at the Place of the Abscess, than in any other Part. If the Abscess be formed in the Uvea, it often lurks concealed, till the Pus is extravasated into the Aqueous Humour.

Abscesses which attack the transparent Part of the Cornea, begin, sometimes, by a little white Spot, which appears on the first Pellicle of that Membrane, which becomes a little raised. This Species is easily cured by pricking it slightly with the Point of a Lancet, without piercing the other Pellicles. But if the Abscess lies deeper, and in the Middle of the thickest Part of the Cornea, and spreads to such a Breadth as to cover almost all the transparent Part of that Membrane, it then becomes what is commonly called an Hypopion. But if this Abscess be not so large, and it breaks on the Inside of the Eye, and that the Pus falls into the anterior Chamber, between the Iris and the transparent Part of the Cornea, and there makes a Gathering in form of a Speck, shaped like an Half-moon, resembling that which appears at the Bottom of our Nails, it is then called Onyx.

[Heister gives a different Account of Hypopion and Onyx. See Hypopion and Oculus.]

Sometimes the transparent Part of the Cornea is clear of the Abscess, which lies between the Conjunctiva and Sclerotica, or in the Duplication of the latter; the Pus breaks into the anterior Chamber, between the Iris and the transparent Part of the Cornea. In the first Case, the Pressure of the Eye-lids may occasion it; and, in the second, it may proceed from the Pressure of the Aponeuroses of the Muscles of the Globe.

In all these different Abscesses, there is great Danger of losing the Sight; several of them, however, are cured, without the least Damage to the Eyes. In the Cure of the Chemosis, I proposed a Remedy to resolve this Collection of Pus; and therefore, I shall here only speak of an Operation, which is sometimes necessary to discharge it. It is requisite, first, to give a Rule to know the Quality of the Pus in the Eye, which requires this Operation; for often the Matter, that escaped into the anterior Chamber, between the Iris and the transparent Part of the Cornea, is dispersed by the Help of Remedies already described; though this Matter cannot be justly said to be dissolved, but is rather precipitated to the Bottom of the Eye.

When this Pus is not dispersed, but rather increases, so as to enter the Hole of the Pupil, it is then full Time to perform the following Operation.

Let the Patient be set fronting a great Light, with his Head on the Back of an easy Chair; then make an Incision in the transparent Part of the Cornea, under the Hole of the Pupil: You must take care the Point of your Lancet do not touch the Iris, which lies behind the Pus.

The Aperture must be made long enough to let the Pus out; to help the Discharge of it, inject warm Water into the Aperture; it will wash, and, as it flows out, bring away the Matter. Apply to the Eye a Compress wetted in a Collyrium, made of Rose, Fennel, and Plantain-water, mixed with the White of an Egg; the Compress must be kept moist, by sprinkling it, from time to time, with the said Collyrium; some of which must be dropped, three or four times a Day, on the Orifice in the Cornea. Some Days after this Pus is emptied, there is, for the most part, a Collection of fresh Pus, in the Place from whence the former was discharged. In this Case, introduce a fine Stilet into the In-

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cision made to open the Abscess; and so let out this Matter, as you had done the first time. If no fresh Matter gathers, the Orifice may be closed; and, if the Eye still continues inflamed, apply the proper Remedies, which I need not repeat.

OPHTHALMIATER. An Oculist.

OPHTHALMOS, ὀφθαλμός. The Eye. See Oculis.

OPHTHALMOXYSSIS, from ὀφθαλμός, the Eye, and ξίω, to scrape. A Brushing of the Eye. See Oculis. Heister. Chirurg.

OPHTHALMOXYSTRUM, of the same Derivation as OPHTHALMOXYSSIS. A Brush for the Eyes. See Oculis.

OPIATA. The Antients justly called those Medicines Opiates, in whose Composition there was Opium, or any other Ingredients, of a narcotic Quality; but, at present, the Name of Opiates is unjustly and abusively bestowed upon Medicines prepared without Opium, whether of the corroborative, alterative, or purgative Kind, only on account of their Consistence, which resembles that of the Theriaca, and other Opiates of a like Nature.

These are, more properly, called Electuaries, which are, at present, divided into those of the solid Kind, otherwise called Troches; and those of a softer Consistence, by some called Opiates, both of which were, by the Greeks, called by the common Name of Antidotē; which, however, did not comprehend purgative Medicines, as our Word Opiate does.

An Opiate, therefore, is a Medicine of a thicker Consistence than a Syrup, and, like the true Theriaca, prepared with Opium, scarcely fluid. It consists of various Ingredients, made up with Honey, or Syrup; and is to be used for a long time, either for purgative, alterative, or corroborative Intentions.

Hence there are Opiates of three Kinds; that is, of a purgative, or alterative, or of a corroborating Quality. *Morelli Formulæ Medicament.*

OPION. The same as OPIUM; which see.

OPISTHOBARES, ὀπισθοβαρές, the Name of a Collyrium, of Use in Asperities of the Eye-lids, and described by *Aetius*, *Trat. 2. Serm. 3. Cap. 110.* from *Oribasius*. It was otherwise called HARMATION, and EUTONON.

OPISTHOCHÉIMON, ὀπισθοχειμών, from ὀπισθεν, behind, backwards, and χειμών, the Winter, in *Lib. 1. Epid.* and *Lib. 1. de Humor.* signifies the cold Season at the latter End of the Winter, which is, generally, then most severe.

OPISTHOCRANION, ὀπισθοκράνιον, from ὀπισθεν, behind, and κράνιον, the Cranium, in *Ægineta*, *Lib. 6. Cap. 2.* is the Occiput, or hinder Part of the Head.

OPISTHOCYPHOSIS, ὀπισθοκύρσις, from ὀπισθεν, backwards, and κύρσις, of κύρῃ, gibbous, is the same as *Cyphosis*, or an Incurvation of the Spine backwards. Gibbosity.

OPISTHOTONOS, ὀπισθότονος, of ὀπισθεν, backwards, and τίνω, from τείνω, to stretch, is a Species of Convulsion; for which see TETANOS, and EPILEPSIA.

OPIUM. This is an inspissated Juice, of a blackish-brown Colour; sometimes redish, of a bitter Taste, and a very disagreeable Smell. The Greeks distinguished two Kinds of it; one got by wounding the *Papaver album*, Officin. the other by Expression. The Opium which we have, is of the first Kind; and as it was cultivated formerly in *Egypt*, near the City of *Thebes*, it has acquired the Name of *Opium Thebaicum*. If we may believe *Kempfer*, all the Opium now used in the East, is what transudes spontaneously from the Plants in *Natolia*, and other Places. But *M. Tournefort*, and several other modern Travellers, could find no such Opium among the *Turks*, all that they met with being the same with what is brought to us in soft Lumps. They, also, observe, that the sober People among the *Turks* seldom take above a Dram in a Day; and a few Grains of that Quantity are always mix'd in their Coffee. In the Empire of the Great *Mogul*, Opium is sold as commonly in the Shops, as Tobacco with us. The Inhabitants prepare it in different Manners, and mix it with different Ingredients, such as Rhubarb, the Extract of Rhubarb, and the like. Some add to it other narcotic Substances, such as the *Datura*. This last is generally the Artifice of the Quacks, by which they who take this, are thrown into pleasing Dreams, which they take for Ecstasies, and believe to be real. *Kempfer* relates many wonderful Effects of this Preparation, which he terms the *Indian Nepenthe*.

The Effects of Opium are always narcotic, whether taken inwardly, or applied externally; and it has been found to cause Sleep, when given in a Clyster, better than when taken by the Mouth. When applied to the Eyes and Ears, it has caused Blindness and Deafness; and *Galen* relates, that an Opium-plaster, laid on a Gladiator's Head by a Stratagem of his Enemy, killed him in a little time afterwards. This Author, also, says, that he never used Opium, except in very pressing Cases. Opium does not make the Pulse quicker, or harder, than it was before; but only greater, and heats very much; which is a sure Proof, that it dissolves and rarefies the Blood; and this appears also from its causing an Itching in the Skin, and sometimes Sweat. It is observed of the *Turks*, who are killed in Battle, that as soon as their dead Bodies are removed from the Places where they fall, they begin to bleed, their Blood being made more fluid by the Opium.



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Opium which they take. By this Rarefaction of the Blood in the Vessels, the Nerves which lie near these Vessels, are compress'd; and thus the Course of the animal Spirits is stop'd, as is, also, the Secretion of many Fluids, such as the Bile and Urine, which occasion Costiveness, and the making of very little Water. Opium, in all Probability, acts by its narcotic Sulphur, which divides and rarefies, in an extraordinary Manner, the sulphureous Parts of the Blood: And accordingly we observe all Vegetables, which contain an Oil of this kind, such as Nutmeg, Saffron, and the like, produce in the Body an Effect of the same Nature with that of Opium. Neither is it at all unfeasible, that Sulphurs should be capable of a very great Degree of Rarefaction, since the Smell of Musk, or Ambergrise, may extend through so large a Space. *Pitcairn* was of Opinion, that the Effects of Opium were owing to its volatile Salt; but it seems to contain that Principle in too small a Quantity for such Operations.

When a Person has taken too great a Quantity of Opium, the first Thing to be done is, to empty the Vessels by copious Bleeding, if the Patient's Strength can bear it. The next Thing is to drink acid Liquors, such as Vinegar, Lemonade, Syrup of Barberries, and such-like, which coagulate the Blood, and thus give the Vessels room to contract. Smelling to Vinegar, and all Aromatics, is also proper; and, if the Stupor be very great, Scarifications ought to be made; and Vinegar and Salt sprinkled upon the scarified Parts. Blisters and sharp Clysters answer the same Effect.

The Rules to be observed in taking Opium, are these;

1. If the Patient be plethoric, he ought not to take Opium, till he has lost some Blood.

2. It ought not to be given in the time of the Menfes and Lochia of Women, nor during the usual Flux of the Hæmorrhoides in Men, because it stops all these natural and healthful Evacuations. Neither ought Opium to be given in every Diarrhœa, because, if it be critical, the Stoppage thereof may be very hurtful. It must, also, be very improper in a Suppression of Urine; and the general Rule is, that, when the Suppression of any one Evacuation by Opium is foreseen, other Evacuations, especially by Bleeding, ought to succeed.

3. Opium ought never to be taken on a full Stomach, because it hinders Digestion, and proves, commonly, emetic. The Digestion ought, therefore, to be completed at the Time of taking it; and the same thing is to be said of all other Narcotics, which, given unseasonably, and for a long Continuance of Time, quite destroy the Appetite, bring on Hickups, Nauseas, and habitual Vomiting.

4. Persons who begin to take Opium, ought to venture only on a very small Quantity at first, because the Effects of the same Quantity on different Persons are very different; and there is no way to determine, but by Experience, how much any Person can bear. Half a Grain has been found to cause Sleep for twenty-four Hours together, to a Person who, afterwards, required half a Dram to produce half that Effect. For it is a certain Observation, that they who accustom themselves to take Opium habitually, must often increase the Dose, otherwise it gradually loses its Effect on them; and the elder *Geoffroy* knew a Woman who took seventy-two Grains every Day, merely to ease the Pain of a cancerous Breast. The common Quantity among the *Turks* is a Dram in a Day; but some take much more.

The Antients were extremely cautious in giving Opium; but, in the Beginning of the last Century, *Felix Platerus*, a learned Physician of *Basil* in *Switzerland*, began to bring the Use of it in Vogue. *Sylvius de le Boe*, Professor of Physic at *Leyden*, perfected what *Platerus* began; and, from that Time, many of the most famous Physicians in *Europe*, such as *Sydenham*, and others, found, by certain Experience, that it was one of the most valuable Medicines in the World, when prudently administered, in calming the too violent Motion of the Blood, and easing Pain.

There are, however, still some very great Men, who continue Enemies to Opium; and among these *M. Stahl* has declared himself, in his Dissertation *De Impassuris Opii*. They are afraid to use it for the Ends just mentioned, for fear of suspending the Crises which commonly happen after violent Pains, such as those of the Gout and Rheumatism; and in acute Distempers, in which the Fluids are violently agitated, they apprehend, that by giving Opium, to diminish these Motions, they only throw a Veil over the Distemper; which hinders them from observing its true Genius, and the Tendency of Nature in the Course of it. Of this they cite *Pleumises* as an Example; and they are certainly in the right, not to give Opium in that Disease.

But, notwithstanding all the Strength of these and other Reasons against the Use of Opium, and the Authority of those who advance them, this Medicine is undoubtedly very proper on many Occasions; as in great want of Sleep, too great Motion of the Fluids, occasioned by purgative, and other kinds of Medicines, in great Defluxions, and in stubborn Coughs. *Geoffroy*.

## PREPARATIONS OF OPIUM.

### EXTRACTUM OPII: EXTRACT OF OPIUM.

Put four Ounces of good Opium in thin Slices, into a Glass Body, wherein there are two Pounds of Spring-water; set

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it in Sand, and stop the Mouth of the Body with another Glass: Make Fire under it, till by gradual Heat it is made to boil, in which State keep it two or three Hours; then let out the Fire, and, while the Dissolution is hot, run it thro' a Flannel Bag, and press it strongly into an earthen Vessel; put that which remains in the Bag into a Matrafs, in which there is a Quart of rectified Spirit of Wine; make a double Vessel of the Matrafs, and let it stand in Digestion twenty-four Hours, now-and-then shaking it; then take it out, and, when it is cool, run it thro' a Flannel; put the Spirit of Wine, which is charged with the gummy Part of the Opium, that the Water was not capable of dissolving, into a Cucurbit; and in a gentle Heat draw off Two-thirds of the Spirit of Wine, which will serve again for the same Use. Then put both the Extractions together, and in a clean earthen Pan, with a moderate Fire, evaporate, till of a Consistence fit to form into Pills, which keep in a Pot for Use.

This is a most certain Opiate yet known, and is very convenient for any Compositions of Laudanum; and some prefer it to any of the Liquid Preparations, because the Dose can more certainly be alligned. It is often prescribed by the Title of *Extractum Thebaicum*: The Dose is from half a Grain to two Grains. Some do this without any thing but common Water; and that, indeed, is a certain way to purify the Opium of all its Dross.

### DR. GODDARD'S COMPOUND EXTRACT OF OPIUM.

Take of Saffron, and Nutmegs sliced thin, of each one Ounce; of Castor, half an Ounce; put them into a Matrafs with Tincture of Tartar, twelve Ounces; set them on a gentle Heat of Sand (with the Mouth of the Matrafs well stop'd) in Digestion twenty-four Hours, shaking it often; then let it cool, and press it thro' a Cloth into a clean earthen Pan: What stays in the Bag, put into the Matrafs again, and put to it rectified Spirits of Wine, half a Pint; let it stand warm for twelve Hours; strain it off to the other; Into these Tinctures put, of the Extract of Opium, five Ounces, set them over a gentle Fire to evaporate into an Extract.

This has the Virtues of the former, but may be ventured in somewhat a larger Dose, so far as to three or four Grains.

### GUTTÆ VITÆ: DROPS OF LIFE.

Dissolve of the best Opium in Water, as in the *Laudanum Liquidum cum Camphora*, four Ounces. Then take of *English* Saffron, one Ounce; of *Russia* Castor, one Ounce and an half; *Cochineal* and *Virginia* Snake-root, of each half an Ounce; Nutmegs, Zedoary, of each two Drams; of Camphire, one Dram: Powder these Ingredients, and put them into a Matrafs; pour upon them Tincture of Antimony, (made with Salt-petre, and *Antimonium Diaphoreticum*) one Pint; let them stand three or four Days in a gentle Heat, shaking the Matrafs often, till a good Tincture is produc'd, which put to one Quart of the Dissolution of Opium: Then let all stand in Digestion forty-eight Hours, and, when settled, decant for Use.

This is the Medicine which *Salmon* made so much Noise with: It is an excellent Medicine in proper Hands, and one of the best Preparations of this kind, tho' it is not enough known to be much met with in Prescription. The Opium is so well guarded with cordial Aromatics, that it may be ventured upon in very considerable Doses, and there is no Fear of Nauseas afterwards at the Stomach; it promotes Sweat very much, and is wonderfully carminative: A Patient may take from 10 to 40, 50 and 60 Drops.

### PILULÆ MATTHÆI. MATTHEW'S PILLS.

Take of the Extract of Opium, of black Hellebore, of *Liquorice*, and the Soap of Tartar, (described under the Preparations of Tartar) of each four Ounces. Let the Hellebore and Liquorice be made into a subtile Powder. Beat and mix these four Ingredients very well; then, with two Ounces or three Ounces of this Mass, mix of *English* Saffron, one Ounce; cut into small Pieces, and beat them well together, till the Saffron is perfectly mix'd with the Mass; so that no Part of it is discernible from the rest; then beat and mix that with the rest of the Mass as well. If this Mass be too dry, you may mix with it some of the Oil which comes from the Soap, which it spues out, when it stands a long time by; or, in its stead, so much rectified Oil of Turpentine, as is sufficient to make it into a Mass fit to form into Pills. Then put it into a wide-mouth'd Glass, or Gally-pot, ty'd over with a Bladder or Leather.



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There are many ways of making this Medicine: *Bates* puts in white Hellebore; but, how much soever it may be imagin'd to stand corrected here, it is much safer left out, and the Medicine still left efficacious enough to all the Intentions it is ordered for. The Saffron in this is not in that of *Bates*; but betters the Medicine in many Cases. It is an admirable and safe Opiate, and promotes the Discharges both by Sweat and Urine; and the Soap of Tartar is so aperient, that it makes it safe, even in Asthmas, when no other Preparation of Opium dare be ventured upon. It may be given from three to ten Grains: When it grows dry with keeping, it must be again moistened with fresh Oil of Turpentine; but the oftener it has had those Amendments, its Dose may be enlarged; for the Turpentine will not dry away so much, as not to leave enough behind to give some Augmentation to its Bulk.

## PILULÆ STARKEI. DR. STARKEY'S PILLS.

Take Extract of Opium, four Ounces; Nutmegs, and mineral Bezoar, of each two Ounces; Saffron, and *Virginia* Snake-root of each one Ounce: Beat the Nutmegs and Saffron together into a Paste, so that they cannot be distinguished from one another. Let, also, the Mineral Bezoar and Snake-root be an impalpable Powder. Then mix all together, with half a Pound of the Soap of Tartar; of Oil of Sassafras, half an Ounce, and two Ounces of Tincture of Antimony: Let them be all well incorporated, by beating in a Mortar: Then keep them in a Glass or Gally-pot, ty'd over with a Bladder or Leather, for Use.

This, Mr. *George Wilson* says, he had from Dr. *Starkey's* own Mouth, in the Year 1665, a little before his Death; who then told him, he gave *Matthews* the former for a little Money, but that this was what he successfully made use of himself. It is both more diaphoretic, and more anodyne, than the former; and they who have made use of it in their Practice, affirm it to be the best Laudanum they ever met with. And yet this is not the Sort which is kept in the Shops, and it is not in so constant Prescription as the former. Indeed there are hardly any of the Shops that prepare this; so that a Physician may write for it in vain, while the other is so ready for a Succedaneum. This may be given in a good handsome Dose, when Rest is wanting, in Fevers; and is not so hazardous in its Effects as common Opium, or any other of its Preparations. The Alexipharmics, likewise, in its Composition, cause it sooner to raise a Sweat, because, at the same time that they warm and attenuate the Fluids for Secretion, the Opium relaxes the Fibres, and makes more Way for their Passage thro' the cutaneous Pores.

## THE UNIVERSAL ANODYNE.

Dissolve of the best Opium, four Ounces, in a sufficient Quantity of Water; evaporate to one Pint and an half, to which put one Pint of rectify'd French Brandy; of Saffron, half an Ounce; of Cochineal, two Drams; and of the Tincture of the volatile Salt of Tartar, two Ounces (or, in its stead, two Ounces of the Soap of Tartar); of *Sal Volatile Oleosum*, and the Spirit that was drawn from the Soap of Tartar, of each three Ounces: Digest these for four or five Days in a well-luted Matrafs in a gentle Heat; then strain it for Use.

This Preparation has some time since been in great account amongst some particular Persons; but it never obtained to be a Shop Medicine: It is very good for all the Purposes of the *Pectoral Sudorific Liquid Laudanum*, (described under the Article LAUDANUM; which see) given from ten to fifty Drops.

*Opium is the proper or milky Juice, which issues from Incisions made in white Poppy-heads, thickened in the open Air into a solid, but softish resinous Gum, of a dark redish-brown Colour; and of a very hot bitter Taste; and strong, heavy or soporiferous Smell; brought from the Levant, and the East Indies, in round flat Cakes, or more irregular Loaves, of different Sizes, from four Ounces, to a Pound and upwards, in Weight; and covered with Leaves, or other vegetable Stuff, to prevent their running and sticking together*

So little is the History of Opium, even at this Day, sufficiently known, that in this short Description there is scarcely one thing asserted, which is not contradicted by famous Authors: And therefore I am under a Necessity to explain and confirm each Part of it.

1. It is well known, that a milky Juice flows from Poppy-heads, when hurt or wounded; that this bears a very small Proportion to the Juices got by Expression, and widely differs from them in Taste, Smell, and Qualities; also, that the Opium of the Ancients was made of the Milk, and their Meconium of expressed Juices, or of the Decoction of one and the same Plant; and that, in their Opinion, the Meconium was much weaker than the Opium. But it is disputed, whether the Opium now used be the true Opium, or the Meconium only.

On the one hand, it is affirmed by *Garcias ab Horto*, *Bellonius*, *Mandeflo*, *Tavernier*, and, to name no more, by Dr.

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*Kempfer*, that our Opium is the Milk drawn from Poppy-heads by Incision, or is the same way prepared, as was the Opium of the Ancients, according to the Account *Dioscorides* and *Pliny* have given of it. On the other hand, it is as positively asserted by *Prosper Alpinus*, *Bellonius*, *Lemery*, *Savary*, and *de la Candamine*, that the Opium of the Shops is nothing but a Meconium.

But that our Opium is neither an Extract, nor an inspissated expressed Juice of Poppies, may be demonstrated by Arguments, which to me appear unanswerable. For, 1. The milky Juice drawn by Incision from Poppy-heads, and thickened either in the Sun, or Shade, even in this Northern Country, has all the Characters of good Opium; its Colour, Consistence, Taste, Smell, Faculties, Phenomena, are all the same; only, if carefully collected, it is more pure, and more free of Feculencies. To obtain this Tear, I first followed the Directions of *Dioscorides*; and on a clear dry Day, before Noon, cut off the Asterisk, as he calls it, or Crown of the Poppy-heads, so as to avoid penetrating into the Cavity of the Fruit; and collected the pure Milk, with a little Silver Spoon, and my Finger, into a China Tea-cup. I made Choice, for this Purpose, of Poppy-heads come to their full Bigness, and before they began to harden or dry. The Juice soon thickens (a small Quantity in a Day or so) to the Consistence of Opium, in the open Air. It was of a fiery-hot and very bitter Taste, and soporiferous Smell; both hotter and stronger scented than the common Opium; of a dark yellowish-brown Colour on the Outside, somewhat lighter within when broken, and not all of the same Colour, but, as it were, composed of Drops. I have of it by me, and, though now more than ten Years old, it retains both its Colour and Taste, though it is not so strong-smelled as when new. This Specimen was taken from the white Poppy: About the same time I gathered Opium, also, from the wild Poppy, which was a little lighter-coloured; but this I thought accidental only; for the Milk turns soon black on the Knife, and so may colour some of the Juice more than another; and in nothing else they differed.

I made Trial afterwards of the *Persian* way of making Opium. I had not the five-edged Knife; but, as quickly as I could, superficially scarified one Side of the Poppy-heads, in four, five, or six Places, according to their Bigness. Next Day, when the Juice was as hard as Opium, I scraped it off, and kneaded it together; so could not discover any thing like Drops in it. Notwithstanding all my Caution, I sometimes penetrated the Head, and some few Drops fell to the Ground; both which would have probably been prevented, had I been furnished with a right *Persian* Knife. Yet I found, that I was able to collect considerably more this way, in the same Time, than in *Dioscorides's* way. That I might have the true Tear, as clean, free of Dust, and fair as possible, I cut off the Star of several Heads, and, bending them down, suffered the Milk to drop into a Tea-cup; then set it in a Window, being well covered with Paper; when it was as solid as Opium, I scraped it out, and pressed it into a Lump. It is altogether of the same Colour, and the whitest I ever saw. I made use of the white Poppy for these Experiments also; and repeated them on several Varieties of the Poppy, both with the white and black Seed, without observing any Difference of the Juice.

2. Both the Extract, and the thickened expressed Juice, differ very much from Opium; and scarcely any way resemble it. I ordered both to be prepared, but neither of them has so much of the Taste or Smell of Opium, that any one could know thereby, that they were all got from the same Plant. The brown Extract is black when dried, as is, also, the green inspissated Juice; but, when diluted, the former is brown, the other green. The Extract is pretty tough and sticking; the Juice is rough, and more friable. Both were evaporated in a gentle Sand-heat; the Juice beginning to turn mouldy in two Days after Expression, though kept in a dry Place, and a broad Basin. I own some Part of either of these may be mixed in some Places with the true Opium; and perhaps the greenish-brown Opium, mentioned by *Condamine*, may have some of the expressed Juice in it, but it cannot be much, for the Reasons following; and probably it is some other aromatic Substance that gives it the penetrating Smell, which it cannot derive from the Poppy.

3. The common Opium contains more Resin, or Sulphureous, than either the expressed inspissated Juice, or Extract, of Poppies can possibly do. For, as will appear below, about the third Part of the common Opium, as well as of what I made, is Resin or Sulphur. Of the Extract, and thickened expressed Juice, Alcohol did not dissolve the hundredth Part, and was even scarcely tinctur'd by them.

4. If Opium was not the true Tear, there needed not be so many large Fields sown with Poppies, as there are in *Natolia*, *Egypt*, and *Persia*; neither would Opium be so strong a Medicine as it is; its Virtues, as an Anodyne, depending chiefly, if not entirely, on the proper milky Juice.

The Objection, taken from the Price of Opium, seems to be of no Force; because I could have collected here, without the *Persian* Knife, and that Dexterity which can be acqui'd only by



by Use, notwithstanding the Climate, and the consequent Smallness of our Poppy-heads, in an Hour's Time, about a Dram of Opium. For these Reasons I conclude, *That Opium is, at least for the far greatest Part, the true Tear of the Poppy.*

II. Another Controversy is, whether Opium is got from the white Poppy, or from the black. The Antients seem to have believed it was from the black. But I think it of no Consequence, whether from the black Poppy, or the white, with regard to the Medicine, though of great Consequence with regard to the Makers of Opium. Interest, therefore, will direct every-where to cultivate, for Opium, only such Poppies as bear the largest and most juicy Heads in the Country, and consequently, so far as I know, the white. Thus we find it is from the white Poppy they procure the Opium in the Eastern Countries.

III. As to the Choice of Opium, I shall pass it as known. But since *Dioscorides* writes, that Opium is sophisticated several ways, and *Bellonius* tells us, that the Merchants increase the Quantity of Opium before it is distributed among the Provinces; it may be asked, whether all the Opium we use is from the Poppies, or whether any other Drug is mixed with it, such as Glaucium-gum, Juice of wild Lettuce, and Suet or Tallow, all mentioned by *Dioscorides*: Though I cannot answer this Question with Certainty, yet I think it probable, that nothing is mixed with it, if it be not a small Quantity of some innocent Liquid, or a milky Juice of the same Nature with that of Poppies; otherwise it would be weakened, and not so strong as what we make here. I know not the Glaucium of the Antients, nor did I ever see any Opium, that I had Reason to suspect to be adulterated with Gum or Suet; but the wild Lettuce abounds, more than any Poppy I know, with a Milk of the same Taste and Smell: Perhaps therefore this, if it can be more easily collected, may still, in some Places, be mixed with Opium, and the Medicine be nothing the worse, the Milk even of the common Lettuces being anodyne and somniferous, as well as that of the Poppies.

IV. I said, Opium comes to us covered with Poppy-leaves, &c. because every Author says so; but what I have seen here is covered with the Flowers, Seeds, chaffy Husks, stripped from the Stalks of some of the *Lapatha* or Dock-kind.

*Opium*, or *Opion*, now the most common Name of this Juice, was, I believe, given it by *Pliny*, *Galen* being the first among the *Greeks* I have seen, that uses it.

That Opium was known to the Antients, nobody denies; but whether the *Greeks* or *Egyptians* were the Inventors, is a Question not yet determined: What seems most probable, is, that this Honour is due to the *Greeks*, and that its soporiferous Quality at least was discovered, if not by *Hippocrates* himself, not long before him; and those learned Men who are of Opinion, that Opium was the *Nepenthes* of *Homer*, seem to be mistaken.

As for the Opium-plant, it is evident from *Homer*, that it was cultivated long before *Hippocrates* lived. The Invention of it is even attributed to *Ceres*; and so acceptable was it believed to be to that Goddess, that she was named *Mecone*; that *Cereale* was a common Epithet of the *Papaver* among the Poets; that it was offered to her in her Sacred Rites; and that she was represented holding it in her Hand. So much Honour could never have been done to a narcotic Vegetable, especially by the *Romans*, had it not been otherwise very useful, and reckoned one of the *Frumenta*, which *Ceres* first taught the *Greeks* at *Attica* how to cultivate and use, for which she was deified after Death. That the Seed of the Poppy was used in Food by the Antients, and particularly in Deserts, will not be denied by any in the least acquainted with their Writings: This *Le Clerc* acknowledges; but he thinks, it was on some other account than Nourishment, or that the Manner of dressing it divested it of the somniferous and noxious Qualities. But I must be of a contrary Opinion; for, even in *Hippocrates's* Works, it is called nourishing; and, without depending on the Testimony of the Antients, Poppy-seed is of a more delicious Taste than sweet Almonds; it is oily and farinaceous; and I have eaten large Quantities of the black Seed, as well as of the white, frequently, and never found them somniferous or noxious: Besides, it is still used in Food in some Places, as well as the express'd Oil, which is as innocent and wholesome as Olive-oil. If this Seed was noxious, baking would not free it of its bad Qualities, the narcotic Part of Poppies being very fixed, and not at all volatile. Hence is confirmed what was said above, that the anodyne and soporiferous Virtues of the Poppy are lodged in the Milk, and in it only: In this it is not singular; for the proper Juice in many Plants differs much in Nature from the common Juices; as the Milk of the common Garden Lettuces is hypnotic, while all the Plant besides is cooling, diluent, and nourishing.

It is, also, certain, that our Garden-poppy is not specifically different from the *μῆλον* or *Papaver* of the Antients; for although we could not make a tolerable botanical Description of this Plant, out of all they have left us concerning it, yet we find in their Works so many Marks of it, as are sufficient to distinguish it from others: For Instance, we learn from

*Theophrastus*, that it is an Herb, which does not cast its Leaves, contains a milky Juice, has very small Seeds contained in Heads, from which the milky Juice is collected. *Dioscorides*, also, gives Marks to this Effect. This may appear to some a mere historical Nicety; but if the Identity of the Medicine be not first demonstrated, we cannot be benefited by the Experience and Observation of former Ages.

*Opium eases Pain, procures Sleep, promotes Perspiration, but checks all other Evacuations; cheers the Spirits, incrassates the Humours, and relaxes the Fibres. Hence it is recommended in intense Pains, Watchings, Spasms, Spleen, Vapours, Fluxes, Hemorrhages, Tenesmus, and in all Diseases proceeding from Tension or Irritation of the Nerves, irregular Motions of the Spirits, or from Thinness or Acrimony of the Fluids.*

It would be too tedious here to recount the various Opinions of Authors concerning Opium: Let it suffice to hint briefly at such afterwards, as are contradicted by plain Experiment.

1. Opium is acrid, bitter, and strongly odoriferous. *Dioscorides* says, it is bitter in Taste, and carotic and soporiferous in Smell; *Matthioli*, that it ulcerates the Tongue and Palate, if kept for some time in the Mouth. Some call the Smell *virosus*, others *gravis*, *teter*, *penetrans*, and the like. If one attentively tastes Opium, he will perceive, first, a nauseous and diffusive Bitterness; then, in about half a Minute, a pungent Heat, affecting first and principally the Tongue, then the Palate, and, last of all, the Lips, in a lower Degree. The Heat continues more than fifteen Minutes, the Bitterness still longer, provoking a plentiful Discharge of the Saliva. It heats and irritates, also, the Nose, and creates an Inclination to sneeze.

Hence, were we to judge of the Virtues of Opium by its Effects on the Mouth and Nose, or by its Taste and Smell, we would reckon it an acrid, diaphoretic, nervine and cathartic Medicine. It certainly is diaphoretic, and properly enough may be called nervine; but not Purgative, though by Accident it sometimes has that Effect. *Erastus* thinks, that, if it was not for its stupefying Power, it would always prove cathartic. According to him, therefore, the narcotic Virtue has no Dependence upon the above sensible Qualities. This will appear the more probable, if we consider, that some Narcotics are acrid, others mild; some bitter, others sweet; some odoriferous, others not; some purge, others stop such Evacuations; and yet all of them are anodyne, and almost equally narcotic and virulent, if the Dose be proportioned to their Strength; and, also, that there are not a few Cathartics as acrid, bitter, and strong-smelled, as Opium, which are no ways narcotic. Consequently, we ought to distinguish between the stimulating and narcotic Qualities of Opium; at least, we may at present conceive of them as different.

These sensible or stimulating Qualities, in the Opinion of some, sufficiently confute the old Notion of the refrigerating Faculty of Opium, and prove it to be a very hot Medicine; and certainly in one respect it is so. But it is as certain, that its Effects in diminishing preternatural Heat, observable in a Variety of Cases, also, evince its cooling Virtues; inasmuch that it would not be difficult to prove, that Opium may more properly be said to cool, than to heat.

2. Opium consists of Gum, Rosin, and terrestrial Parts, in such Proportion, that in twelve Parts of Opium there are about six Parts of Gum, four of Rosin, and two of terrestrial Feculencies, neither dissolvable in watery or spirituous Menstruums.

I dissolved Opium in Water, Wine, Vinegar, Spirit of Vinegar, and Brandy; and drew a Tincture from it with Spirit of Wine rectified with Salt of Tartar, or Alcohol, keeping always the Proportion of one Part of Opium to twelve Parts of the Menstruum; and found that Alcohol dissolved Four-twelfths of Opium, there remaining Eight-twelfths; of which Water dissolved Five-twelfths, and left Three-twelfths of Feces. Water dissolved Eight-twelfths; and, of Four-twelfths remaining, Alcohol dissolved one, leaving of earthy Parts as above. It must be owned, the Proportions were not always exactly the same; but did not much differ. Hence Water dissolves about Three-fourths of the Sulphur of Opium. I found, also, that Water dissolves Opium as well, and as soon, as Wine, Vinegar, or Spirit of Vinegar; only the Solution in Water, in three or four Days, becomes turbid, and soon after mouldy, separating from it a whitish Substance, containing Part of the dissolved Rosin; that Brandy, or Proof Spirits, dissolves both the gummy and resinous Parts of Opium, that is, all that Water and Alcohol separately can dissolve, and that even without Heat, leaving nothing but the feculent Part. Hence, there being, in twelve Parts of Brandy, about eight Parts of Water, so much Water, Wine, or Vinegar, is a sufficient Menstruum for one Part of Opium. But though I tried this Proportion of eight to one, and it answered; yet, because twelve to one completed the Solution sooner, I kept by it. For Water, Wine, Vinegar, and Brandy, in the Proportion of twelve to one, took but four or five Days for the Solution without I fear, if frequently shaken; but Water, in the Proportion of eight to one, took ten or twelve Days; Alcohol requires about a Month. And the Residuum of a Solution of Opium in cold Water contains nothing which boiling Water can extract.

Supposing,



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Supposing, therefore, that the Rosin or Sulphur of Opium is as good, or as much wanted, as the Gum, or the mucilaginous Part, Brandy is certainly the best Menstruum.

3. The Gum of Opium has the same Taste and Smell with the Juice; but the Rosin has no Taste, and smells rather musty than of Opium. This is taken notice of, also, in the *Col. Chym. Leid.* C. 310. This Rosin is much condemned by Dr. Jones, and others. I wish they had given more convincing Evidence of the Mischief it does. The World is too cautious now to believe implicitly every general Assertion.

It is well known, that the Solution of Opium in Water is anodyne and soporiferous, has all the good Qualities of the Juice, and operates in as small a Dose; and yet that Opium in Substance is sometimes preferable to it; that, allowing half the Sulphur of Opium only to be Rosin, even thus one half of it is in all the aqueous Solutions and Extracts; and that a few Grains of the most tenacious, tough, and sticking Rosin, cannot do much Prejudice, if not otherwise hurtful, far less the Third or Fourth of a Grain. Common Aloes is fully as resinous as Opium, and its Rosin as sticking. This Rosin of Aloes has generally been blamed for causing the Tenesmus Hemorrhoidalis, &c. by its irritating Acrimony. But a late Member of the Royal Academy (who asserted, also, that Rhubarb was not astringent) has attempted to prove it not only innocent, but very friendly to Nature, and the best Corrector of the Acrimony of the Gum. Lest this should be the Case with Opium, I made Experiment upon myself with a Tincture of the Residuum of Opium dissolved in Water, extracted by Alcohol. I took at first ten Drops, then fifteen, and last of all twenty-five; and must own, that it tasted strongly of Opium, and was somniferous; but I was not sensible of any bad Effects of it. I may add, that the Balsamum Anodynum is found to be really Anodyne internally, as well as externally, though the Tincture is extracted with rectified Spirit. But, whatever is in this, crude Opium may be preferable to the Solution, as it does not so soon dissolve in the Stomach, or as it increases the diaphoretic Quality, or on account of some Singularity in the Constitution. But, for the most part, what does not dissolve in Water may be unnecessary. Hence I infer, that the narcotic Virtue of Opium does not depend on its *vaporosum Sulphur*, according to *Fred. Hoffman*, nor on its *Sulphur crassum ad modum rarefiscibile*, according to *Geoffroy*, akin to that of *Crocus*, *Castor*, &c. Few vegetable Substances have less Sulphur than *Crocus*. It yields all to Water, nothing to Oil. And I may add, that *Castor* and Aromatics are commonly reckoned Correctors of Opium.

4. Though Opium is rather alcaline, than accecent; yet it cannot be called an Alkali. This I learned by many Experiments: For I dropt into a Solution of Opium in Water, in different Glasses, and separately, the Spirits of Vinegar, Hartshorn and Vitriol, and the Oil of Tartar *per Deliquium*. None of them caused the smallest Ebullition or Effervescence; the Acids only diluted the Solution; but the Alkali turned it milky, the Mixture soon separating into two Parts; below it was clear and transparent as before, and the milky Part gathered above, like a thick Cream, which, on shaking the Glass, subsided, leaving the upper Part clear: Yet this did not always happen; for, on repeated Concussions of the Glass, the Cream sometimes returned to the upper Part of the Solution. The Solution, with the Oil of Tartar in it, smelt somewhat urinous. The Cream separated by Filtration, and dried, melted and flamed with Heat; and dissolved in Alcohol, but not in Water; and consequently was Part of the Sulphur of Opium, which the Water had dissolved. To be more certain of this, I dropt Oil of Tartar, and Spirit of Hartshorn, into separate Portions of a Solution in Water of the Residuum, after extracting the Rosin of Opium with Alcohol; and found that neither the volatile nor fixed Alkali caused the least Separation, or Precipitation, but only diluted the Mixture, Alcohol having dissolved and extracted all this Sulphur.

I mixed the Solution of Opium in Water, with an Infusion of Violets; it did not turn red, or undergo any Change, except what necessarily follows the conjoining of two Colours so different, when the one does not destroy the other. Tincture of Saffron in Water had the same Effect. I infused, in the said Solution, a Piece of blue Paper, with which Sugar-loaves are commonly covered; and poured some of it upon another Piece of the same Paper, till both were thoroughly melted with the Solution; and though at first, when it was covered with the red Solution, the Paper appeared redder than before, yet, when dried, it was so far from being redder, that it had lost its native redish Cast, and was become of a worn-out or faded Blue, rather greenish than redish. I mixed, also, the Solution of Opium with the Tincture of Turnsole in Water; and it turned of a bright-red Colour. The aqueous Tincture of Saffron made the same Change. The Tincture of Turnsole, between the Eye and the Light, is of a deep Crimson; but, when it dries on the Glass, is blue like the Juice. What dried on the Glass of that mixed with Opium, continued a Bright-red. A Solution of Opium in Water, also, turned a Solution of corrosive Sublimate milky, and curdled it; Spirit of Vitriol made

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it again clear. In a word, this Solution of Opium gave more Phenomena of an Alkali, than of an Acid: So that I cannot imagine what made Mr. *Geoffroy* assert the contrary.

All these Experiments were, also, made with the Opium I had collected here, and likewise with the Solutions of common Opium in Wine, Vinegar, Spirits, &c. with the same Event, except in so far as the Menstruum made a Difference. Thus Spirit of Vitriol precipitated the Tinctures; Oil of Tartar *per Deliquium* would not mix nor incorporate with them, though often well shaken together.

I poured a few Drops of the Oil of Tartar *per Deliquium* upon crude Opium, but could observe nothing like an Ebullition, or Effervescence, which some have asserted. It became, indeed, a little whitish, when dried; and smelt somewhat urinous, by reason of the Alkali's Action on the Sulphur, and essential Salt. The Occasion of this Experiment, which might otherwise seem superfluous, was because Professor *Hoffman* attributes this Change of Colour and Smell to the Congress of the Alkali with the acid Sulphurs; though he denies, that the Blood can be coagulated, or that the animal Spirits can be fixed, by it.

Blue Vitriol turned a Solution of Opium in Water whitish, and opaque, or milky; but this subsiding, the upper Part was transparent, and of a beautiful green Colour. Green and white Vitriols made it black, like a dirty Ink. To see whether this was owing to the heterogeneous Substances, which the Opium was covered with, I drew a Tincture from them separately, and mixed it with a Solution of green Vitriol; but it did not in the least make it black.

From these Mixtures I may infer, 1. That the essential Salt of Opium is ammoniacal. 2. That Opium contains a very small Proportion of an Acid. 3. That it is somewhat astringent, or makes the same Change on Chalybeates, that vegetable Astringents do.

5. The most active Principles of Opium are not volatile, but very fixed; for it keeps well. I have of it forty Years old, which is still hard, solid, and retains its Taste. I kept a Dram of Opium in the Heat of boiling Water for five Hours; and, though fresh, and pretty soft, it scarcely lost one Grain and an half in Weight. I had Opium, dissolved in Water, fermented and distilled, but got no Proof Spirits from it, though eight Ounces of Opium were used. The first four Ounces of Spirit that came over, were hot to the Taste, and had a peculiar Smell and Flavour very different from that of Opium, and not bitter; the second four Ounces were much weaker, and the last four almost tasteless. The first and second Spirits, or rather Waters, were mixed and rectified by Distillation; and I got from them about three Ounces, which I thought would have been a Proof Spirit; but, on Trial, it appeared weaker than the first four Ounces. Then having filtrated what remained after the first Distillation, I dried the resinous Residuum, and had as much fully, as if no Fermentation had preceded. The filtrated Liquor I evaporated to an Extract; but, before it was cold, the Vessel in which it was, being broken by Accident, I lost Part of it; but, so far as I could guess, I should have had a Quantity of Extract and Residuum, very near equal to the Quantity of Opium I employed. The Extract had nothing of the Smell of Opium, but the Residuum still retains a little of it, though it is near five Years since the Experiment was made.

Hence, 1. Old Opium is but a little worse or weaker than new. 2. Toasting Opium on a Plate of Iron, with a Design to correct it by divesting it of its narcotic Part, which was long practised, and much commended, by Authors, may burn it, but cannot make it better. 3. Opium affords little or nothing by Distillation: If, therefore, we would have the Virtues of the Theriaca in a liquid Form, we must infuse Wine, or rather Brandy.

6. By a Chymical Analysis, Phlegm, urinous Spirit, Oil, volatile as well as fixed Salt, and Earth, may be got from Opium, Although it must be acknowledged, that some Simplex, as different in Figure, Nature, and Qualities, as possibly can be, afford the very same Principles by a Chymical Distillation, such as Deadly-nightshade, and Cabbage; and consequently that, very little of the Virtues of Opium can be thus either investigated, or explained; yet, seeing some by the Analysis pretend to prove, that the Effects of Opium depend on its Sulphur; others, on its volatile Salt; others, that its Sulphur is narcotic, and Salt diaphoretic; I thought it not amiss to repeat this Process three times; and found that sixteen Ounces of Opium distilled by itself in a Glass Retort, with a Sand-heat, gradually increas'd, gave,

1. Of Phlegm, an Ounce and two Drams. This Phlegm was very fetid, and empyreumatic, like that from Mustard-seed; it made no Effervescence, either with Spirit of Vitriol, or Oil of Tartar; nor did it change the Colour of Syrup of Violets, but turned the Tincture of Turnsole into a pretty bright Red, which Oil of Tartar again changed into blue; it also whitened and precipitated a Solution of corrosive Sublimate.



2. Of Spirit, four Ounces two Drams; and of Oil, two Ounces. The Spirit was very fetid and acrid, and made a great Ebullition with Spirit of Vitriol; the Oil was black and light, partly thin, and partly thick.

3. Of volatile Salt, adhering to the Neck of the Retort, about four Grains.

4. Of Caput Mortuum, six Ounces. So I lost in the Operation about two Ounces three Drams and fifty-six Grains.

The best Method I could devise to find how much volatile Salt was contained in this Spirit, was to compare its Strength with the Strength of Salt of Hartshorn, in enervating the Spirit of Vitriol; and, finding that one Part of Salt of Hartshorn, dissolved in Water, saturated as much Spirit of Vitriol as eighteen Parts of the Spirit of Opium, I thought I might conclude, that, in thirty-four Drams of the Spirit of Opium, there was not more than 114 Grains of volatile Salt; which, with the four Grains in the Retort, made one Dram fifty-eight Grains: That is all the volatile Salt we could obtain from sixteen Ounces of Opium, and consequently one Grain of volatile Salt from sixty-six Grains of Opium. Hence it appears, that the Virtues of Opium do not depend on its volatile Salt or Spirit, far less on its spirituous and volatile Parts, coagulating the Blood as Spirit of Urine does Spirit of Wine, which was *Craniius's* Opinion.

The Caput Mortuum, by long and repeated Calcinations in a Crucible, was reduced to four Drams forty-nine Grains. I made a Lixivium of it with boiling Water, filtrated it, and dried the Earth, which weighed two Drams fifty-one Grains; so Water extracted one Dram fifty-eight Grains. This Lixivium had a saltish Taste, made no Effervescence with Spirit of Vitriol, nor with Oil of Tartar *per Deliquium*; neither made any Change on Syrup of Violets, Tincture of Turnsole, or the Solution of corrosive Sublimate. I evaporated it over the Fire to a Pellicle, and to Drinefs, in a *Delft* Plate, in the Air, and had of a pretty white Salt in Powder, with numerous small prismatic Crystals in it, one Dram thirteen Grains, neither Alkali nor Acid by any Experiment. The Earth I again calcined for three Hours, by which it lost about six Grains in Weight, and, being elixivated and dried, it was diminished twenty Grains more; but the Remainder of the Lixivium, evaporated to Drinefs, gave only about ten Grains of a Salt like the former, though not at all alkaline, but white: So of the calcined Caput Mortuum Water extracted two Drams eighteen Grains, which, with the six Grains lost in the last Calcination, subtracted from four Drams forty-nine Grains, gives two Drams twenty-five Grains, as the Quantity of Earth contained in a Pound of Opium. The Quantity of the Salt is not equal to the Substance dissolved in the Water, because Part of the Lixivium was employed otherwise.

The Proportions of Salt and Earth were much the same in the Caput Mortuum of all the three Analyses; and, also, in the Ashes of some Opium I calcined by itself, none of them affording any fixed Alkali: But, having by me a little fixed Salt of the second Analysis, which had been kept five Years, by evaporating the Lixivium in a Tea-cup in a Chamber-window, and was in small, somewhat prismatic, but irregular, and yellowish Crystals, I dissolved it in Water, filtrated and crystallized it without Heat as formerly, and had a Salt like brown Sugar-candy, which is a true fixed Alkali by every Experiment. During the five Years it had lost about an eighth Part of its Weight, and the Paper was moist in which I kept it; it does not run or melt *per Deliquium*, but is still perfectly dry. To account for this, it requires more Experiments.

In the first Analysis we increased the Fire slowly, and changed the Recipient so soon, as all the Phlegm was come over; in the second, we did not change the Recipient, but raised the Heat to the greatest Degree the Retort could bear, as fast as we could, and continued it for ten Hours; in the third we first kept the Retort in Balneo Mariæ, or boiling Water, for the greatest Part of a Day, and then changed the Recipient, and gave it the Sand-heat. Thus we had two Drams less of Water, than in the first Analysis; neither of them effervesced with Acids or Alkalies; but the Water in this third Process, which was almost tasteless, smelled more of Opium, and was less empyreumatic, precipitated a Solution of corrosive Sublimate, and redened Syrup of Violets, and Tincture of Turnsole. Hence Opium contains but little Acid, or a very weak Acid, though Mr. *Geoffroy* said he found in it a powerful acid Salt.

A Pound of Opium, by a Chymical Analysis, gave, according to Dr. *Pitcairn*, of Spirit, forty-five Drams; of Oil, ten Drams and an half; of Caput Mortuum, sixty-two Drams; and there were lost in the Distillation ten Drams and an half; according to Mr. *Geoffroy*, of Spirit, forty-nine Drams; of Oil, nine Drams and an half; Caput Mortuum, sixty-two Drams; lost seven Drams and an half; and the Caput Mortuum, calcined to eight Drams, twenty-five Grains, yields of fixed mere alkaline Salt two Drams twenty-eight Grains and an half; consequently there remained of Earth six Drams six Grains and a half: But, by our Processes, of Phlegm, forty-two Drams, six Grains; volatile Salt, one Dram fifty-eight Grains; Oil, sixteen Drams; fixed

Salt, two Drams eighteen Grains; Earth, two Drams twenty-five Grains; and there evaporated in the Distillation, perhaps of Air, nineteen Drams fifty-six Grains, and consumed in Calcination of Oil, &c. forty-three Drams seventeen Grains.

The Effects of Opium on other Animals are not much different from its Effects on Men; or it is, to some of them at least, innocent, hurtful, or poisonous, according to the Dose.

I. I, one Evening, put a big strong Frog into a Pot of Water, wherein a small Quantity of Opium was dissolved; it soon appear'd to be uneasy, by making strong Efforts to get out of it; but, in a short time, it flag'd, or grew dull, making very little Motion; and next Morning it was dead, and much swell'd.

II. I convey'd, through a small Glass Tube, a few Drops of a Solution of Opium in Water, into a Frog's Stomach; and, putting the Animal into a Glass Cylinder, adapted it so to a good Microscope, that we had a distinct View of a Part of the Membrane between the Toes of its hinder Foot, where the Circulation of the Blood may easily be seen. My Design was, since I found Opium killed Frogs, to observe if there was any visible Change made by it in the Blood itself, or in its Motion: I could not, indeed, see any Alteration of the Blood, as to its Consistence, Colour of the Serum, Magnitude, Figure, or Colour of the red Globules; but I saw, very distinctly, a surprising Diminution of the Blood's Velocity; for it did not move half so swiftly, as it uses to do in these Creatures. But, in less than half an Hour, I saw the Velocity of the Blood gradually increase, the uneasy Frog recover its wonted Vigour, and the Blood its common Celerity; upon which, we put the Frog into a Basin of clean Water, and allowed it half an Hour to refresh itself; then gave it another Dose of Opium, and viewed it as before; the Blood then moved slower than it did the first time; and, its Velocity gradually decreasing, at length it stagnated, first in the smaller, then in the larger Vessels; and, in about a Quarter of an Hour, the Animal expired. One Thing very observable was, that, notwithstanding the diminished Velocity of the Blood, there was no sensible Diminution of the Frequency of the Pulse; when there was even no Circulation, or progressive Motion, of the Blood in this Part, the Pulse was visible by an undulatory Motion; that is, the Blood returned as far back at every Diastole of the Heart, as it was protruded by the preceding Systole; this continued till the Frog appeared to be quite dead. I then opened it, and found nothing in its Stomach but a clear Mucus, like a Gelly, a little coloured with the Opium, of which it was full; every thing else seem'd perfectly natural. This Experiment we frequently repeated, and it had always the same Appearances and Event. The Recovery, however, of one of the Frogs, which, for a considerable Time, appear'd to be dead, is not to be omitted. Having, one Evening, seemingly killed a Couple of Frogs, as above, with Opium, I laid the strongest half in Water on a Tile, in the Bottom of a Water-pot, that, if it recovered, it might sit either wet or dry, as it chus'd; the other I left on the Earth, dry, under an Hedge; this I found, next Morning, dead, as I left it; but the other, in the Water-pot, was alive, and appeared to be in perfect Health.

We injected into the crural Vein of an old Dog, weighing about forty-two Pounds, half an Ounce of Opium, dissolved in four Ounces of Water filtrated, and of the same Warmth with the Blood of the Animal, in the following Manner. We first threw in, very slowly, about fifteen Drams. It had no observable Effect. About an Hour after, we injected, also slowly, eight Drams more; and immediately the Dog was seized with strong Convulsions; the Pulse was frequent and small, and, after some time, he foam'd at the Mouth. But there appearing no Signs of immediate Death, after we had waited an Hour more, we threw in, as quickly as we could, the last nine Drams; upon which, the Pulse became full and slow, and, in about a Minute, the Dog expired.

Opening his Thorax, we found the Lungs sound, but very small and white, without any Blood in them; the Heart very big, and all its great Vessels much distended with Blood. In this State they continued till next Day, when, on opening them, clotted Blood ran out from the Right Ventricle, and Vena cava; the Blood in the Left Ventricle, and Aorta, being much more coagulated. But we could observe nothing in the Brain, or Abdomen, preternatural. Some Days before, a Solution, neither filtrated nor warmed, had been very forcibly injected into a Dog; upon which, he fell immediately into violent Convulsions, and died in three Minutes. See Dr. *Freind's Emmenalog.* C. 14.

We gave, also, to a little Dog, of about fifteen Pounds Weight, at different Times, in the Space of a few Minutes, and wrapped up in the Crum of new Bread, two Drams of Opium. Being very hungry, he swallowed it greedily, without shewing any Inclination to vomit. We watched him about an Hour; but, observing no Alteration or Effect of the Opium, we left him till next Morning; when he was not sleeping, but had lost the Power of his Limbs, and would neither eat nor drink. In this State he continued four Days more, without tasting any thing, and then perfectly recovered. The Quantity of Opium, dissolved in boiling Water, had more sudden and more fatal Effects on the Dog mentioned by Dr. *Mead*



Opium, externally applied, is discutient, anodyne, and soporiferous; and has almost the same Effects as taken inwardly. One of the Inconveniencies following the immoderate Application of Opium, Mandragora, and Hyoscyamus, for Pains of the Eyes, taken notice of by *Galen*, (*Method. Med. L. 3. C. 2*) is the Mydriasis, or a preternatural Dilatation of the Pupilla. And *Mr. Ray* was Witness to a remarkable Instance of this kind. A Woman having applied Part of a Leaf of the deadly Nightshade, to a cancerous Ulcer, a little below her Eye; in one Night's time, the Uvea lost entirely its muscous Force, and was so relaxed, that the Pupilla, in the clearest Light, remained four times bigger than that of the other Eye. But, on removing the Leaf, the Tunica Uvea recover'd its Tone by degrees. That Opium gives Ease in Pains of the Teeth and Ears, in Colics, Inflammations, even in cancerous Ulcers, externally applied, is well known; but that it stupefies the Part to which it is applied, so as to make it insensible of any Pain, without the Intervention of Sleep, is not so evident. I applied it, by way of Plaister, round my little Finger; also to my Arm, immediately above the internal Condyle, for a whole Night; it grew soft, and stuck fast to those Parts, but neither stupefied nor inflamed them, nor had any Effect that I could observe. I have, also, several times, applied a Solution of Opium in Water, to Parts excoriated, and superficial Wounds; and found it always hot and irritating, like weak Spirits, the Pain continuing for some Minutes.

Hence, 1. Opium is not, properly speaking, narcotic externally; and there may be Pains which it cannot remove as a Topic. *Platerus* found it ineffectual in the Gout. If, therefore, the common Caustic, prepared with Opium, gives no Pain when used, it is a very extraordinary Phenomenon. I never tried it; not because I fear'd a Gangrene, but because the Fact is improbable. 2. That Narcotics, at least sometimes, impair the Tone of the Muscles, and cause, for a time, a Relaxation of the Nerves, or Palsy, about the Place to which they are applied externally.

Opium rather coagulates or thickens, than dissolves or attenuates the Blood. I mixed a Solution of Opium in Water, with Milk, Serum of the Blood, and Blood itself, drawn fresh from Arteries, as well as Veins. It made no observable Change in Milk; yet, after the Mixture stood some Days, there was a Separation; a white grumous Part subsided; it had a Cream above, and between these it was clear, and of the Colour of the Solution. It turned the Serum of the Blood more thick and whitish, and curdled it a little; it, also, had the same Effect on the Blood fresh-drawn, which always precipitated a sort of whitish Coagulum; and so left what was uppermost a little thinner. *Sydenham's* Laudanum made the Blood from a Vein appear more crimson-colour'd; but next Day it was darker, there was a greyish Precipitation, and the upper Part was not coagulated as usual; perhaps, because shaken and diluted by an uncoagulable Liquid. These Trials agree with *Dr. Friend's* Experiments, and seem to favour the Affirmation of some Authors, that the Blood has been found congealed and frozen about the Hearts of such as have died by Opium. There was grumous Blood in the upper Part of the Brain of the Dog, which *Dr. Mead* mentions. *Mech. Account Poif.*

Habit, or customary Use, makes that Quantity of Opium safe, and even beneficial, which would otherwise be Poison. A few Grains of Opium are Death to any Person in Health, and unaccustom'd to it; but, if one, beginning with small Doses, habituate himself to it by degrees, he will not only, in time, be able to bear a much greater Quantity, but also, at length, find it as necessary as Wine or Spirits are to Tipplers. I said, in Health; because some Diseases, as Madness, in a great measure, enervate the Force of this Medicine.

The Action of Opium is very analogous to that of Wine, or vinous Spirits, excepting only in so far as it depends on the Quantity requisite for the same Effect: For, both the good and ill Effects of Opium are very little different from the good and ill Effects of Wine. Vinegar, also, is as much an Antidote to Opium, as it is to Wine. Hence Wine cannot be said to correct Opium, nor can Opium be said to act by rarefying the Blood, since Spirits, which coagulate it, produce much the same Effects.

The Virtues of Opium, internally taken, depend, principally, on its Action, or Influence on the Stomach. I have often observed a violent Tenesmus removed in a Moment, by a few Drops of liquid Laudanum, Vomiting stop'd, Pain eased, and Sleep procur'd the same Way, and almost as soon. There are many Instances in *Wepfer*, (*de Cicuta aquatica*) of very terrible Symptoms, and Death itself, caused by Narcotics, before they went out of the Stomach, and without so much as inflaming it, or undergoing any visible Change in it, far less vitiating the Mass of Blood; and, also, of the same Symptoms being removed, and Death prevented, by Vomiting.

Several other Precognita may be here insisted on. 1. In Pain there is a preternatural Contraction in the sensible Fibres, and in Sleep a Relaxation, or, as it were, a Palsy, of the Organs of Sensation, and voluntary Motion. 2. The most inconsiderable or minute mechanical Impulse on the Nerves, or unusual Impression

on the Mind, may be the Cause of the greatest Changes in the animal Oeconomy. 3. The Virtues of many Medicines depend solely on their Action on the Nerves, or nervous Fibres. 4. The same Force or Impression on the Nerves of one Part has very different Effects from what it has on the Nerves of another; and often at one time from what it has at another time on the same Part; as Asarabacca in the Nose, and in the Stomach; Tobacco at first, and after it is habitually used. 5. This Action of the Nerves being, many times, no otherwise discoverable than by its Consequences, the primary and secondary Effects of Medicines may be, and too often are, confounded. 6. As the primary Effects of a Medicine have frequently several secondary ones, so the same Simple sometimes differently affects the same Nerve, or at least, different Nerves of the same Part, so as to produce Effects altogether independent of one another: This our Taste, in many Instances, can discover; and the Taste of Opium, compared with that of other Narcotics, sufficiently evinces it to be the Case here; that is, that the stimulating Qualities of Opium have very different Effects from the narcotic Part; and, if we compare the Effects of wholesome Aromatics with those of the most virulent Narcotics, we may add, 7. That the stimulating or aromatic Part of Opium is so intimately united to the narcotic, as thereby to mitigate it in some measure, and render it more friendly to Nature, than the Narcotics, that want it, are; as the *Hyoscyamus major vel niger*, or *Sium Erucæ folio*.

From all that has been said, I may draw the following Inferences.

1. That the anodyne and hypnotic Virtues of Opium depend not on its Action on the Brain, or on the Blood, whether externally or internally used.

2. That it affects, first and principally, the Nerves to which it is applied; next, such as are more immediately connected to, or communicate with them; then those which serve for Sensation, and voluntary Motion; and, last of all, by Consent, the whole nervous System.

3. That this Impression, Action, or Influence on the Nerves, differently affects the Common Sensory, and the Mind, according to its Degree, and the Nature and Function of the Nerves primarily acted upon.

"Those who take a moderate Dose of Opium, especially if not long accustomed to it, are so transported with the pleasing Sense it induces, that they are, as they often express themselves, in Heaven; and, though they do not always sleep, yet they enjoy so perfect an Indolence and Quiet, that no Happiness in the World can surpass the Charms of this agreeable Ecstasy." *Mead on Poisons*. Which, therefore, *ceteris paribus*, must remarkably promote a free Circulation and Perspiration; and, by removing Impediments, dispose to Sleep. But if the Dose be immoderate, or excessive, and the Impression exceeds the Bounds prescribed by Nature, as in Drunkenness, these Transports of Joy degenerate into ridiculous Mirth, Deliriousness, or the like; or end in profound Sleep and Lethargy; or a Palsy, Apoplexy, or sudden Death, finish the Tragedy, according to Circumstances; whereas the Effect of Opium in the Mouth and Nose, on Parts sore or excoriated, are very different, as has been formerly observed. The anodyne Virtue of Opium, externally applied, cannot be the Effect of any delightful Sensation in the Part: Pleasure may well be the Consequence, but it does not appear to be the Cause, of the Removal of Pain.

4. That the primary, or first observable Effect of the mechanical Impression or Action of the narcotic Part of Opium on the Nerves, is the Relaxation of their Fibres.

Whether this Relaxation is the physical Action of Opium on the Nerves themselves, or only the Effect of the Impression made by it on the Common Sensory, that is, whether Opium is immediately, or only mediately, the Cause of it, I shall not positively determine. It may, perhaps, be as difficult to explain how the Action of Narcotics on the Nerves causes a paralytic Relaxation, as how the Images painted on the Retina cause Vision.

Neither can I say, that the stimulating, or aromatic Part of Opium does not contribute to its easing Pains; for Spirit of Wine is anodyne, but it causes no Relaxation of the Part, or near it, to which it is applied, in which it evidently differs from Narcotics.

Now, as this Relaxation of the Nerves, and consequently of the moving Fibres, demonstrates Opium to be more than a palliative Remedy, in a great many Diseases; so it is not difficult, by it, to account for its bad, as well as good Effects; for, by relaxing to certain Degrees, it may prove anodyne, cordial, diaphoretic, hypnotic; or cause Stagnations, Deliriums, Lethargies, Apoplexies, and Death.

I have hitherto, on purpose, taken little Notice of Opium's rarefying the Blood, though asserted by Authors whom I very much esteem; not only because, by the foregoing Experiments and Observations, it appears to have no such Effect; at least, that the Action or Operation of Opium cannot depend on it; but also because, were this Theory admitted, it might be of bad Consequence, and lead into dangerous Errors in Practice. Thus, if Rarefaction of the Blood be admitted as the Cause of direct



Symptoms, which the Abuse of Opium sometimes occasions, the Remedy indicated would be Venesection; whereas some Authors affirm, that it is Death to open a Vein, even the Day after a Narcotic has been taken. Besides, if it rarefied the Blood, how could it be so useful in Hæmorrhages, Small-pox, and the like, as it is found to be?

It is by no means necessary now, to answer the Objections against the Use of this Medicine, in different Ages, since it has, at last, triumph'd over all Opposition; and is not only of more universal Use, but, also, does more Honour to Medicine, than any Remedy whatsoever.

Opium is commonly given to adult Persons, unaccustom'd to it, from half a Grain to three; but to such as are used to it, to four, five, or more Grains, till it produce the desired Effect. The usual Preparations are, the Extract, Tincture, *Sydenham's* Liquid Laudanum, anodyne Balsam, and pacific Pills; and it is the Basis of the Storax-pills, Mithridate, Theriaca, and Diacordium.

With relation to the Dose, the general Rule, that it is safer to give too little, than too much, of efficacious Medicines, is in no Instance more to be observed, than in the Administration of Opium; especially, seeing its Effects appear so soon, that the Defect may much more easily be supplied, than the Excess can be remedied. For, if too much Opium is taken, the Muscles become soon paralytic, so that nothing can be swallowed; and all we can do, is to endeavour to provoke Vomiting, by tickling the Throat, or by Clysters, and Cataplasms of Tobacco, and such emetic Applications; and, at the same time, to rouse Nature by strong Sinapisms. If thus the unfortunate Patient is enabled to take Medicines, after emptying the *Primæ Viæ*, Diaphoretics mixed with Vinegar, and such-like Acids, will seldom fail to complete the Cure.

To conclude; I am very sensible, that Opium is an edged Tool, and may do Hurt; but it is, also, a divine Remedy, and may do much Good. A Physician may be too timorous, as well as too bold, in Practice; and the Sick oftentimes suffer the one way, as well as the other. As, therefore, I see no Reason absolutely to condemn the giving of Opium to Infants, to weak, plethoric, or aged Persons; to pregnant Women, or in malignant Diseases; so, on the other hand, if removing Pain, procuring Sleep, checking Evacuations, preventing a salutary Hæmorrhage, or the like, be dangerous or unsafe, he must either be ignorant of the Healing Art, or of the Nature of Opium, who, in such Cases, rashly prescribes it. *Edinburgh Medical Essays, Vol. 5.*

Among all the vegetable Substances used in the *Materia Medica*, none has had so various a Fate as Opium; for some, both of the Antients and Moderns, esteem'd it rank Poison, because they found, that it often induced Drowsiness, Torpor, Sleep, and sometimes Death; or, at least, that Diseases were rendered worse by it; whilst some others, especially among the Moderns, extol it as the most efficacious of all Medicines, for alleviating Pain, procuring Sleep, and preserving the Strength; so that some Physicians, and, among the rest, *Platerus* and *Sylvius*, who brought this Medicine into Reputation, after it had long lain in Obscurity, have not scrupled to affirm, that they would not be Physicians, if Opium was banish'd from the *Materia Medica*; and the incomparable *Sydenham* thanks Almighty God for having bless'd the World with Opium, a Medicine highly efficacious in removing a large Number of Disorders incident to Mankind. Besides, some Authors of Note and Learning have wrote on purpose to screen Opium from the Calumnies with which others had loaded it, and shew that it is the safest, most efficacious, and universal Medicine, provided it is cautiously used. But though the Use of Opium is of vast Importance in Practice, yet its Abuse is no less fatal and destructive, since it accidentally proves poisonous; and 'tis, at present, hard to determine, whether the Good procured by its due Use be greater, than the Misfortunes induced by a preposterous Exhibition thereof. But as Physicians differ with respect to the Efficacy of Opiates, so their Sentiments are no less various about its Method of acting; so that 'tis hard to choose which Side to embrace. As none of their Hypotheses are satisfactory, we shall now briefly inquire, whether the Influence of anodyne and narcotic Medicines on the human Body cannot be accounted for from the Motion of the Blood.

As, therefore, that Hypothesis is certainly best, which is most easy, perspicuous, and best calculated for accounting for Phenomena, and solving Difficulties; so 'tis incumbent on those who would investigate Truth in a proper Manner, and establish a rational Hypothesis, carefully to advert to all Effects, Phenomena, and Circumstances; that, by comparing these with the Hypothesis, their Affinity, or Incongruity, may be the more palpably discerned: For this Reason we shall consider the most remarkable Effects produced in the human Body by Opiates, according to the different Times, Doses, and Methods in which they are exhibited.

'Tis, therefore, certain from Experience, that all vegetable Substances, which for a long time diffuse an acrimonious Smell, whether internally or externally used, excite Sleep, Drowsiness, and a Stupor of the Senses; and if they are used for a considerable

Time, and in large Quantities, they produce the same Effects with Narcotics. 'Tis, also, to be observed, that all fragrant and volatile Substances induce a calm and gentle Sleep; but this Observation holds most conspicuously with respect to the Flowers of Rosemary, Saffron, Lily of the Valley, Cowslips, Elder, the Lime-tree, the *Egyptian* Thorn; as, also, the Flowers of Oranges, Jessamine, and white Lilies; the Waters of which, especially when distilled with May-dew, are of singular Efficacy in allaying the tumultuous and irregular Motions of the Spirits in Epilepsies, and spasmodic Disorders. To the same Class, among animal Substances, belong Musk and Civet, and, among Sea Substances, Amber, which, when frequently exhibited in due Doses, is of singular Efficacy in allaying the most violent epileptic Fits: On the contrary, 'tis certain from Experience, that those Substances which for a long time exhale a violent, vinous, and fixed Vapour, are rather of a stupefactive Quality, by which the Strength, Senses, and Operations of the Mind, are considerably weaken'd, and sometimes totally destroyed. Of this Kind are all the Species of Poppies, Henbane, Nightshade, and Mandrake; and ferid animal Substances, such as Castor, the Shavings of Horns and Hoofs. Some Animals and Insects dried, generally, do not produce a narcotic Effect, but only, by checking the irregular Motions, prove beneficial in alleviating painful Spasms.

'Tis, also, to be observed, that no Substances are possessed of an anodyne or narcotic Effect, unless they consist of a volatile Principle; according to the more fix'd or volatile Nature of which, they produce different Effects. Hence, an anodyne, or narcotic Quality is falsely ascribed to Nitre, or Vitriol; though 'tis not to be denied, that these Substances, when rightly prepared, and duly used, are of singular Efficacy in alleviating Pain, since they both fix and weaken the bilious Acrimony in the *Primæ Viæ*. From what has been said, we may easily assign a Reason, why unboil'd Opium produces Sleep, and alleviates Pain, far more expeditiously, than when it is deprived of its volatile Principle by boiling; as, also, why the oleous and pinguous Parts of the Seeds of Poppies and Henbane are less narcotic, than their Plants, Leaves, Flowers, and Roots, which consist of a resinous Volatile, though, at the same time, a Principle not exhaled without Difficulty; and 'tis certain, that the Vapours exhaled from a somewhat fix'd volatile Substance affect the Brain more violently, stop the Motion of the Blood and Spirits more effectually, and suspend the Action of the animal Functions more thoroughly, than if the Matter diffusing the Exhalations was of an highly subtle Nature. Hence, the Water and Spirit of Poppies, and the Waters obtain'd from the Flowers of the wild Poppy, and the white Lily, are far more mild, than their more fixed and resinous Extracts.

'Tis, in like manner, certain from Experience, that Opiates, duly prepared, cautiously used, and exhibited at proper Times, especially in young and full-grown Persons, such as are neither of a plethoric nor cacochymic Habit, but of sanguine and choleric Temperaments, provided the Strength is sufficient, and the Pulse such as indicates the Vigour of Nature, are the most safe and effectual Remedies in violent Pains, convulsive and spasmodic Disorders, excessive Discharges of Blood or Serum, and continual Watchings: On the contrary, 'tis equally certain from Experience, that Opiates, in unskillful Hands, have often either kill'd Numbers, or render'd the Disorders, for which they were exhibited, worse; especially if, when not corrected, they are exhibited in too large Doses, to Persons of weak and delicate Constitutions, to such as labour under malignant Disorders, to such as have a weak and small Pulse, or are phlegmatic, fat, plethoric, cacochymic, or costive.

But 'tis principally remarkable, that Opiates, and all Narcotics, unseasonably exhibited, are, in a particular manner, noxious to the Brain, and animal Functions; for nothing is more frequent, than that the Use of Medicines of this Kind is succeeded by an oppressive Pain of the Head; a profound Sleep, accompanied with terrible Dreams; a Vertigo so violent, that the Head cannot be kept erect; a Torpor of the Senses, a Redness and Tumor of the Face, an Inflation of the Veins of the Head, a Languor of the Strength, and an Inability to Motion. But still more terrible Disorders of the Brain have, by skilful Physicians, been observed to be produced by the injudicious Use of Opium; such as profound Sleep, Stupor, and a surprising Loss of Memory. Thus *Willis*, in his *Pharmacop. Ration. Part. 1.* observes, that some, by taking a small Pill of Laudanum, have been thrown into so profound a Sleep, that they could never afterwards be roused out of it; and though from their Pulse, Respiration, and Heat, they seem'd to be alive, and in a due State, for three or four Days, yet they could never, either by internal Remedies, or external Applications, be recall'd to Sensation and Waking. The same Author, in the Work last quoted, informs us, that by taking a small Dose of Opium, he has observed, that others have hardly slept at all, but that they immediately became worse with respect to their Pulse, Respiration, and Heat; since such Patients forthwith became more breathless, and could not be restored by any Cardiacs, but gradually languished, till they died. The same Author, in his *Treatise de Anima Brutorum*, gives us the History of a Man, who, in order to alleviate a Colic, took



took large Quantities of Opium; immediately after which, he complain'd of a violent and oppressive Weight in his Stomach. His Friends exhibited Wine, Cordials, and hot Spirits, which afforded him no Relief; for the Oppression, spreading farther, excited Languors about the Præcordia, and Deliquiums; till at last, though he continued awake, and preserved his Reason, he complain'd that his Spirits were, gradually, more and more exhausted, and died in three Hours.

That the unskilful Use of Opiates greatly injures the Brain, Senfes, and mental Powers, we learn from a Case in *Miscell. Nat. Curios. Decad. 1. a. 5.* where we are inform'd, that a certain Man, upon ignorantly taking a large Quantity of Opium, was first afflicted with terrible Dreams, and then deprived, in some measure, of the Use of his Tongue; an Hour after which, he was seized with a Vertigo, a Disturbance, and gyratory kind of Motion in his Head. The Patient, also, afterwards, told, that he and the Bed seem'd not only to be suspended in the Air, but, also, to fly. Thus he remain'd, as it were, in an Apoplexy, and unconscious of his own Existence. In the Beginning of his Disorder, he said, he neither perceived the Taste of the strongest Vinegar, nor the Smell of the Spirit of Sal Ammoniac. His Pulse was low; and, when he shut his Eyes, he had the Appearance of a distracted Person. During this Condition, spirituous apoplectic Water was exhibited to him, by which his Spirits seem'd to be forthwith recruited; after which, he perceived an Itching all over his Body. *Stalpart Vander Wiel*, in *Obs. 42.* justly cautions, that Nurses, and Women who have the Charge of Infants committed to them, should not, when any Pain or Uneasiness seizes them, forthwith exhibit somniferous Medicines; since it often happens, that though these do not prove fatal, yet, if often used, they frequently weaken the Brain, and nervous System of Infants, and, as we find from Experience, induce a Tremor of the Joints, a Palsy, and Stupor. And *Willis*, in his *Pharmac. Rational. Part 1.* tells us, that, by means of Opium, he knew several Persons who contracted Slowness of Genius and Stupidity, and others consumed Folly. And in the same Work he informs us, that he knew a certain Man, who by taking a large Dose of Laudanum, when he was feverish, lost his Memory totally. *Tilingius*, in his Treatise *de Laudano Opiato*, gives us an Account of a Servant Maid, who, instead of the Theriaca, took Laudanum Opiatum, by which means she was immediately seized with a Stupor and Drowsiness, which lasted all her Life: Her Memory in the mean time was lost, nor did she ever recover her usual Health. *Schneider*, also, in his Treatise *de Catarrho*, *Lib. 4. Cap. 8.* informs us, that by the Use of Opium the Son of a certain Indian King lost both his Reason and Memory.

From what has been said, we may understand, why Opiates are so prejudicial to the Head, as we observe in violent Disorders of the Head, such as Apoplexies, Epilepsies, Lethargies, Palsies, Diminution of Memory, and Vertigos, which, after the Use of Opiates, are always increased, and become more dangerous: Thus *Bartholin*, in *Att. Hafniens.* informs us, that a certain Woman, upon allaying an Head-ach by Narcotics, was from that time seized with a Vertigo, Stupor, and Weakness of the Head. In Diminution of Sight, and Difficulty of Hearing, Opiates are by no means to be used. Thus *Waldschmidt*, in *Dissert. de Opiatorum Noxia*, informs us, that a Woman, labouring under a dangerous Hemorrhage of the Uterus by the Use of Opiates, contracted a Blindness not to be removed by any Medicine.

Besides, Opiates and Narcotics disturb the Use of the Senfes, and of Reason, and often excite Folly and Deliriums; which, also, holds true with respect to the more fixed stupefying Medicines, such as the deadly Nightshade, the Roots and Seeds of Henbane, Mandrake, and Lohum, which, when eaten, according to the Observations of Authors, produce an Alienation of Mind, and drive Persons into Madness; so that they seem to be possessed by Devils. In some they produce surprising Convulsions and Agitations of the Members, accompanied with Madness: Instances of which are to be met with in *Matthias de Lobel's Nova Stirpium Adversaria*, *Matthiolus in Dioscorid. Wierus de Præst. Dæm. Olearius in Irin. Persico*, and *Timæus*. In a Mania these Medicines, also, generally increase the Rage; for which Reason *Helmont*, in his Treatise *de Lithiasi*, justly charges those with an Error, who attempt to mitigate a Mania by Opiates, since all the Medicines of this Kind naturally produce Distraction, which is nothing but a waking Dream. And in his Book, intitled *Retenta*, he confirms the same Doctrine, by telling us, that Narcotics, exhibited in Doses four times as large as those commonly used, hardly procure Sleep to mad Persons, but rather increase their Madriess. *Freitagius*, in his Treatise *de Opio*, *Cap. 3.* observes, from *Prosper Alpinus* and *Belonius*, that the Egyptians and Turks eat Opium, in order to render themselves cheerful, bold, and salacious. But these two Authors, at the same time, observe, that though these Devourers of Opium seem to enjoy good Health, and not to be injured by its Use, they yet become colder, their Functions are render'd worse, they almost always appear drunk and torpid, become comatous, stupid, and inconstant; sometimes affirming, and at other times denying, the same thing, so that they are neither fit to be dealt nor conversed with; and Persons who contradict themselves are,

by way of Reproach, said to have eaten Opium, just as we accuse others of being drunk.

Besides, Opiates greatly stop the vital Motions of the Heart and Arteries, and render the Circulation of the Blood more faint and languid; for which Reason Opium generally renders the Pulse weak, and the Respiration difficult, producing, at the same time, an Anxiety about the Præcordia, especially in Persons who abound with thick Blood. Hence we are enabled to assign a Reason, why weak Persons, and those labouring under malignant Disorders, are easily destroyed by Opiates, since the Exhibition of them is succeeded by an extreme Loss of Strength, Syncopes, and at last Death. Hence Instances of the fatal Events of Opium are every-where to be met with in practical Authors. Thus, we are informed by *Frederic Hoffman*, in *Metal. Morbis*, that a certain Physician of *Hall*, labouring under a burning Fever, in order to remove continual Watchings, took some Grains of Laudanum, by which means he soon died: *Sanctorius*, also, in his *Method. vitand. Errores*, *Lib. 8. Cap. 12.* tells us, that in the Confines of *Hungary* he saw a Soldier, who, upon taking seven Pills of Opium, forthwith began to breathe with a kind of Impetus, and soon after expired. *Forestus*, also, in *Lib. 9. Obs. 14.* makes mention of a cacochymic Patient, who, upon an Exhibition of Opium, in nephritic Pains, by an unskilful Physician, had a Sleep procured, out of which he could never afterwards be awaked. Instances of the like Kind are to be found in *Willis's Pharmacent. Rational.* and *Sennertus*, in *Prax. Lib. 6. Part. 7. Cap. 1.* It is, also, observable, that Opium, injected by way of Clyster, has proved fatal to many; various Instances of which are collected by *Telingius*, in his Treatise *de Opio*, *Sennertus*, in *Lib. 6. Prax. Part. 7. Cap. 1.* and *Marcellus Donatus*, in his Treatise *de Hist. Medicis Mirabilibus*, *Lib. 4. Cap. 18.* which, in my Opinion, happens, because the Opium, by stopping and checking the Motion of the Blood, induces a Sphacelus of these Parts.

It is, also, to be observed, that Opium proves a Stimulus to Venery, Cheerfulness, and Cruelty; for which Purposes it is much used by the *Turks* and *Indians*, who, of the purest Tears of Opium, prepare, by Fermentation, what they call *Maslach*, a very intoxicating Liquor, which procures a kind of Madness, and which they use when they are either about to enter the Field of Battle, or embrace the Fair. This is confirmed by *Joh. Jac. Saar*, in his *Itiner. Ind. Orient.* who tells us, that the *Indians* of *Bantam* prepare a certain Electuary of Opium, which they call *Affion*, a Substance of a cineritious Colour, of a sweetish and somewhat bitter Taste, and by the Use of which they are render'd fierce. The *Chinese*, also, in *Batavia*, use this Electuary as a Stimulus to Venery, which it excites so powerfully, that they continue the brutal Gratification of their Lust for a whole Night, and often oblige their Prostitutes to make their Escape, when they are able to sustain the Diversion no longer. See *B. D. D. Sachs. Tom. 2. Ephem. Germ. Obs. 69.* where other Authors are, also, quoted; and the celebrated *Wedelius*, in his Treatise *de Opio*, informs us, that in hot Constitutions Opium excites nocturnal Pollutions and Tentigos, especially if the Persons are naturally disposed to such Disorders: Hence, if it is mixed either with Amber, or the Essence of Amber, it proves an excellent Stimulus to Venery.

It is, also, necessary we should consider the Method of correcting Opium; for as crude Opium is rarely to be trusted to, so, when rightly prepared and corrected, it proves a Medicine of singular Efficacy. *Galen*, in his Treatise *de Theriaca ad Pisonem*, *Cap. 13.* convinces us, that he was very cautious in the Use of Opium, by telling us, that Opium used by itself was fatal; but, when prepared with other Substances, a salutary and beneficial Medicine. Hence, in my Opinion, those Things correct Opium, which lessen its Virulence, render it mild and salutary to the Body, and especially which rouse the languid Motion of the Fibres, brought on by the Use of Opium; for since Opium, as we find from Experience, generally stops all the Motions of the Blood and Spirits, it must of course be salutary, to mix with it such Substances as excite and promote these Motions. Hence, from a Mixture of these two contrary and repugnant Substances, there results a kind of third and neutral Substance, which is at once of an aperient and sedative Quality: And as those Things which induce the most violent Motions in the human Body, are by all allowed to be Sudorifics, Purgatives, spirituous and aromatic Substances, saline and diuretic Medicines, so Opium is most commodiously mixed with them; by which means they are render'd surprisingly efficacious, and, as it were, universal. Of this kind are the Theriaca of *Andromachus*, so highly esteemed for so many Ages; the Diacordium of *Eracastorius*; the Theriaca *Celestis*, the *Requies Nicolai*, and the Theriaca *de Citro*; which are highly safe and efficacious Medicines, in many Disorders, Pains, Defluxions, and Spasms. Opium is, also, an excellent Medicine, when mixed with Purgatives, such as the Extract of Aloes in the Pills of *Wildeganis*, the Extract or Powder of white Hellebore, in the Pills of *Starkii*, or *Marthie*: For these Preparations, as we often observe, render the Body soluble, powerfully excite Sweat, and generally never bring on a Torpor, turbulent Dreams, a Vertigo, and an oppressive Torpor of the Head, like other Opiates, left to themselves, without any kind



of Correction. Opium mixed with tartarized Tincture of Antimony, or with the acrid Tincture, prepared from the Regulus of Antimony, is both a safe and efficacious Diuretic: Spirituous Substances, such as Cloves, Cinnamon, and its Oil, as, also, Malmsey and *Spanish* Wines, excellently prevent the Injuries of Opium, and convert it into an innocent Medicine; for this Reason the Laudanum Liquidum of *Sydenham* is justly to be commended, because we know from Experience, that it is safely exhibited in all Disorders, where Sedatives are indicated as proper. *Stablius* greatly commends the following Spirit, prepared from Opium by Distillation.

Take of *Spanish* Wine, one Quart; of the best Opium, half an Ounce; of the Flowers of wild Poppies and Elder, each three Pugils; of Saffron, one Dram; of Nutmegs, Cloves, Cinnamon, and Cardamoms, each two Drams.

These Ingredients, when mixed, and duly distilled, yield a Spirit of a grateful Taste, a pleasant Smell, and an efficacious Virtue. This Spirit is of a nervous, antispasmodic, and sedative Quality. Its Dose is one Spoonful.

Having thus consider'd the principal Effects of Opium on the human Body, we now come to investigate the Method in which Narcotics, and especially Opium, operate. The Antients, then, universally imagin'd, that these Medicines operated by a certain occult, poisonous, and refrigerating Quality, which extinguished the innate Heat of the Constitution. Among the Moderns, *Willis*, in *P. 2. Patholog. Cap. 3.* affirms, that these Medicines are a Species of Poison, which, by its Vapour, surrounds, and, as it were, overwhelms the animal Spirits, whilst the Blood, in the mean time, and solid Parts, are not in the least injured. And in his *Pharmacop. Rational. Sect. 7. Cap. 1.* he tells us, that by Opiates the Spirits are affected, and, as it were, poison'd; so that by their Vapour being, as it were, confined in Chains, they forthwith become languid, and cease to perform their Offices. The learned *Ettmuller*, in his *Disput. de Virtute Opii Diaphoret. Cap. 501.* affirms, that Opiates fix the Spirits, and that, in Cases where the animal Spirits become fierce and exorbitant, they are checked, and reduced to a due Order, by Opiates. The celebrated *Wendelius*, in his *Tractat. de Opio*, explains the Operation of Narcotics, from the Condensation of the Spirits, and an Obstruction of the Pores of the Brain: For, says he, the Operation of Opium consists in a particular Kind of Evaporation, which obstructs the Pores of the Brain, already open'd, and dilated by too long Watching; hinders the immoderate Influx of the animal Spirits; condenses, and, as it were, coagulates them; and by that means procures a grateful Rest to the Body. Nor can it be denied, says he, in the same Work, that the Nerves of the Stomach immediately receive this Vapour or Exhalation, especially since Opium contains a Sulphur, which is easily resolved in Vinegar, Water, and spirituous Liquors. *Glabachius*, in *Prax. Med. Idea nova*, informs us, that Opium produces its Effects by its volatile Salt, and gross Oil; which, when resolved in the Stomach, and expanded in the Blood, by its Ramifications involves the Spirits resolved by the Fermentation, so that the Blood may not be thrown into a Commotion and Fermentation. Hence the gross and irregularly moving Spirits in the Blood, which, by obstructing the Nerves, hinder a free Circulation, are suppressed, and deposited in smaller Quantities in the Brain. Whilst this is a carrying on, the Blood is more slowly propelled from the Heart, the Pulse becomes more languid, and the Circulation is hinder'd. The *Cartesians* imagine, that Narcotics, by a certain foreign Æther, in some measure coagulate the Blood and Humours, and stop their Motion, notwithstanding their volatile Salt and subtile Oil, which otherwise seem rather adapted to increase the Motion of the Blood: Hence, when the Motion of the Blood in the obstructed Parts is no longer so violent as it was before, the Pain must be somewhat mitigated. And, say they, it is very probable, that the volatile Salt of Narcotics, being highly subtile, but, at the same time, sufficiently acrid, is capable of separating some of the slender Fibres of the Parts, which, being by that means render'd more flaccid, cannot convey so brisk a Motion to the Common Sensory. This Opinion is, also, embraced by *Cranius*, who, in his *Tractat. de Homine*, informs us, that the spirituous and oleous Parts of the Opium coagulate the Blood, in the same manner with the Spirit of Urine, and the rectified Spirit of Wine; by which means a Drowsiness is afterwards produced, and the Pain alleviated, because, by the volatile and acrid Salts of the Narcotics, the Fibres of the Nerves are so resolved, as to lose their Tension, and, consequently, cannot convey the Action of Objects to the Common Sensory. Some, by various Experiments, endeavour to prove, that Opium contains an acid Sulphur; but especially because crude Opium, by an Affusion of Oil of Tartar per Deliquium, produces an Ebullition. Hence they are of Opinion, that this Acid coagulates the Blood, and fixes the Spirits.

But a little Attention easily convinces us, that none of these Hypotheses are sufficient for accounting for the before-mention'd Effects. And, first, for the Opinion of those Antients who took Opium for a Poison, because, by its excessive Coldness, it ex-

tinguishes the native Heat, or Sulphur and Spirit of the Blood; we observe that, even according to *Hippocrates*, Opium is hot; consists of an hot and inflammable Sulphur; and, when externally applied, softens and resolves Tumors, a Property peculiar to hot Substances. Much less can the Favourers of this Opinion ascertain, wherein this poisonous Quality, which extinguishes the vital Spirits, consists. Nor do I think they could, upon their Hypothesis, disentangle themselves, if one was to ask them why the Theriaca of *Andromachus*, the Theriaca Cœlestis, Mithridate, and the Diacordium of *Fracastorius*, whose Basis is Opium, have for many Ages been accounted the most present Alexipharmics, and justly celebrated Remedies. Besides these, many Panaceas, which have longest sustained their Character for Efficacy, have Opium in their Composition; such as the Pilulæ Wildegansii, sold under the Name of *Panacea Solaris*, the Pilulæ Starkeanae, and others. Opium is, also, the most present Aphrodisiac, because it produces a Turgescence of the Semen, and an Erection of the Penis; and the *Eastern* People render themselves bold and hardy in Battle by its means. The like Effects I myself have, also, observed produced by it on others, when used moderately: But, in such Cases, it must produce an additional Stimulus, rather than an Extinction of the Spirits. And though we are, by various Observations, taught, that several Persons have been killed by Opium, or, at least, subjected to violent Symptoms, yet nothing else is proved by this, than that Opium is an highly active and powerful Body; and though all drastic Medicines, such as ethereal Oils, Sudorifics, Emetics, Purgatives, and Mercurials, when exhibited in large Doses, not only induce terrible Symptoms, but, also, sometimes Death, yet they are not, for this Reason, to be called Poisons: And the same holds true with respect to Opium.

Those, also, who affirm, that Opium coagulates and fixes the Blood and Spirits, principally on account of its acid Sulphur, are, in my Opinion, greatly mistaken; for though I readily grant, that crude Opium, by an Admixture of alkaline Substances, is concentered, and undergoes a Change, with respect to its Smell and Texture, by means of the Acid peculiar to almost all the resinous and gummy Extracts of Vegetables, yet we cannot hence conclude, that this Acid fixes and coagulates the Spirits, and much less the Blood; for it is known from Chymistry, that all Resins, resinous Gums, and Woods, are possessed of an acid Taste, which, however, does not render them narcotic. And, if the Effects of Opiates proceeded from an Acid, certainly the Oil of Vitriol, which is highly acid, concentrated Spirit of Vinegar, and Spirit of Nitre, must produce the same Effects in a greater Degree, which, however, they do not. Besides, no Traces of an Acid can be discover'd in the Water of wild Poppies, Opium, Saffron, and the Seeds of Poppies and Henbane. It is, also, to be observed, that Opium resolved in Tincture of Tartar, by which means its Acid is taken away, still retains its somniferous Quality. And, granting that the Acid of Opium is a Sulphur of a fixing Nature, uncommon to other Acids; yet it cannot be conceived how it can stop or coagulate the Blood or Spirits, the most moveable Fluid, perhaps, of any in Nature. Nor is this Hypothesis proved by that Experiment, in which rectified Spirit of Urine is mixed with highly rectified Spirit of Wine; for this is not so much a Coagulation, as a Precipitation of the volatile Salt, contain'd in the Pores of the Phlegm, by means of the highly rectified Spirit of Wine, imbibing the Phlegm. Besides, no one can conceive, that Opiates alleviate Pain, because, by their highly saline and volatile Acrimony, the Fibres of the Nerves are so resolved so as to lose their Tension, and due Sensation; for those Spicula, if there are any in Opium, are not so considerable, as to dissolve the Texture of the Nerves, or Membranes; for by this means they would rather increase the Pain; and volatile Salts, and acrid Substances, such as Things prepared with Pepper and Cantharides, would, for the same Reason, ease Pain, which, however, they do not. And what is advanced about a foreign Ether, is equally unsatisfactory, because such a Substance, not coming under the Cognizance of our Senses, cannot be defined. Those who derive the diaphoretic and Pain-alleviating Virtue of Opium from its volatile oleous Salt, as being an Acid, and the Principle which removes the Pain, as *Bontekoe* in his Works affirms, embrace an Hypothesis equally ill-founded; for only a small Quantity of volatile oleous Salt can be obtained by Art from Opium, Mandrake, Nightshade, and Poppy. Besides, it may be justly asked, why volatile oleous Salts, exhibited in a larger Dose, do not produce the same Effect.

But those who seem to have consider'd this Affair with greater Accuracy, are of Opinion, that Opium, by its highly subtile and sulphureous Vapour, which is of a branchy Nature, acts immediately upon the Spirits, and the Pores of the Brain and Nerves, the former of which it clogs and overclouds, whilst it obstructs and blocks up the latter. Hence a more languid Influx of the Spirits into the muscular Parts, and the Heart, happening, the Organs of Sensation are deprived of their Tension, the Circulation of the Blood and Humours render'd slower, and all the Secretions and Excretions weaken'd. Though these are very considerable and important Circumstances, yet it is justly to be doubted, whether they exactly quadrate and correspond to the



Effects of Opiates; for first it is hard to be conceived how, by the Power of the Stomach, the highly subtile Vapours of the Opium, being resolved, and passing into the Blood, should be again separated from the Blood in the Brain, and how they should obstruct the minute, medullary, and nervous Ducts; since a vaporous Substance does not enter peculiar Ducts, much less obstruct the Motion of the subtile and elastic Lymph of the animal Spirits. But granting that the vaporous Exhalation of Opium is exhaled through the Pores of the Arteries of the Brain, yet it will with Difficulty find its Way into the *Corpora Striata*, and Bottom of the Brain, where the Nerves generally arise; and, if it should by chance get Possession of these Parts, it may again be easily dissipated through their Pores. Hence it cannot, in my Opinion, be accounted for, why Opiates, and other stupefying Medicines, often leave behind them a long-protracted Torpor, a Sensation of Weight in the Head, a Stupor, a Vertigo, an Inflammation of the Head, and a Loss of Memory. It may be, also, asked, why other fragrant Substances, which diffuse a penetrating and copious Smell, do not, like Henbane or Nightshade, produce stupefactive Effects, even though these latter are less vaporous than the former. Nor can it be commodiously accounted for, why, in some Persons, Opium should be an Aphrodisiac, and sometimes produce Watchings and Madness, or disturb the Fancy and Reason; for if the Pores of the Brain are obstructed, or the Spirits condensed, by these Vapours, their due Influx into the Parts must be retarded; which, however, cannot happen in Watchings and Madness, where, by the Consent of all Physicians, the Pores are open, and the Spirits conveyed with a preternatural Fury and Impetus. That highly fetid Vapours, of the sulphureous Kind, have not a Power of extinguishing the Spirits, is obvious from this, that kindled Hairs, or Feathers, infallibly rouse hysterical Patients, and those labouring under a Syncope, and rather restore than extinguish the Motion of the Spirits. I have frequently observed, that, in burning and inflammatory Fevers, the Exhibition of a small Dose of Opium has brought on a Disorder of the Head, and a gentle Delirium, succeeded by a long Hemorrhage, by which the Delirium was afterwards terminated. But this Phenomenon can but ill be accounted for from this Hypothesis, which supposes that Opium operates by Vapours and Effluvia; for if this Delirium, Alienation of Mind, and Stupor of the Brain, proceeded from Vapours stagnating in the Brain, undoubtedly Sudorifics, and such things as recruit the animal Spirits, would most quickly remove those Effects, which, however, does not happen.

In an Affair, therefore, of so difficult a Nature, we shall briefly propose what we think most probable: First, then, it is not to be denied, that the Principle by which Opiates, and other Narcotics, act, is a Sulphur capable of Resolution and Evaporation, that is, which, by the Addition of a sufficient Degree of Moisture and Heat, is resolved into highly subtile Vapours. Now Sulphurs may be commodiously reduced to three Classes; for some of them are pinguious and unctuous, and abound with a gross Earth, and a large Quantity of Moisture, such as all expressed Oils, Fats, or Lards, which are with Difficulty resolved into Vapours: Other Sulphurs consist of a subtile and saline Earth, which, however, is fixed by acid Particles, such as all resinous Substances, which, if they are freed from the Substances in which they are involved, become too subtile and ethereal, such as all distilled Oils: And other Sulphurs are of a temperate Kind, consisting of a Fluid, a Salt, and a subtile ethereal Earth, more or less fixed; and all such Substances exhale a certain gross and long-continuing Vapour, and are either of a fragrant or a fetid Smell. Those Bodies, therefore, which consist of such a temperate Sulphur, and not only yield to temperate, but, also, to aqueous Menstruums, are possessed of an anodyne and stupefactive Quality; for which Reason, when they are taken into the Body, they are, by a kind of fermentative and rarefactive Motion, resolved in the Stomach and Intestines; a mild Heat, the salival Menstruum, and the Fluid of the Air, concurring to the Production of the same Effect. But the sulphureous and highly subtile Particles, thus resolved, are partly conveyed immediately to the Blood, through the porous Substance, by means of the membranous and nervous Ducts; and they are, also, partly convey'd to the Blood, along with the Chyle and Lymph. But when the Blood, impregnated with an highly subtile vaporous Principle, arrives at the Lungs, it is there more expanded, attenuated, and render'd elastic, by the elastic Parts of the Air, conveyed thither by means of Inspiration. Hence the Blood is necessarily expanded, and fills a larger Space. But when a Blood too much inflated, rarefied, and turgid, approaches the cerebral Substance of the Brain, and the small arterial Ducts surrounding the *Pia Mater*; these Ducts, whose Coats are very slender, are preternaturally distended and expanded by this rarefied Blood, a Circumstance which renders the systolic and contractile Motion less and slower: Hence the Circulation of the Blood through the Head and Brain is render'd slower, and more languid; hence, in order to the Return of the Blood through the Veins, the Systole of the Arteries, and, consequently, the sublequent Impulse, are always necessary

But from a slow Return of the Blood through the Veins of the Head, a Distention of the Arteries, and a Stagnation of the Blood there, all the Phenomena and Effects, produced by the Exhibition of Opium, may be commodiously explained and accounted for; for, whilst the Blood thus retarded moves through the Veins, the thin aqueous Parts are easily secreted through the Pores, and induce a profound and gentle Sleep: And if a larger Quantity of this Serum, secreted from the Blood, should overflow the adjacent Parts, an oppressive Pain of the Head, a Torpor, a Loss of Memory, and an Alienation of Mind, may be produced. But when the Blood, in consequence of its preternatural Thickness, becomes stagnant, or when it is agitated by an acrimonious Principle, or a violent, hot, and intestine Motion, then various Fancies, turbulent Dreams full of Terror, and even Madness and Watchings, are excited. Hence the Reason is obvious, why, after the Use of Opiates, the Vessels of the Head are render'd turgid and tumid, the Face becomes red, and Hemorrhages of the Nose sometimes succeed. But, when the Blood is thus slowly conveyed through the Brain, a small Quantity of animal Spirits are secreted and generated, and whilst this happens, the due Tone and Tension of the Nerves, which depends upon a proper Influx of the Spirits, and is highly necessary to all Sensation, is destroyed in the Parts; and hence the Privation of Pain draws its Origin: Hence, also, we are enabled to assign a Reason, why those Spasms of the whole Body, which depend upon an impetuous Influx of the Spirits, are alleviated; and as excessive Spasms generally hinder the Excretions of Sweat, Urine, and Stool, it happens, that, after the Use of Anodynes, the Sweat, suppressed by such a Cause, as, also, the Evacuations by Stool and Urine, flow more freely, and are reduced to better Order. And as the Excretions of Blood, and the Evacuations by Stool, derive their Origins from an Influx of the Spirits; hence Opium generally stops immoderate Hemorrhages and Fluxes, since it retards and lessens the Influx of the Spirits, because, by this means, the due Flux and Reflux of the Blood in the Head is intercepted: Hence the Reason is obvious, why, after the Use of Opiates, the Pulse becomes weaker and slower, since, by the Consent of all Anatomists, it is granted, that the Motion of the Heart depends upon the Influx of the animal Spirits: Hence, also, we understand why, in a Defect of Strength, proceeding from a diminished Circulation of the Humours, in malignant Fevers, as, also, in all Disorders of the Head, such as Apoplexies, Vertigos, Palsies, Weakness of the Senses, Deliriums, and Loss of Memory, which arise from a retarded Circulation of the Blood through the Head, Opiates produce present Mischiefs, and render these Disorders more dangerous. The same fatal Effects are produced by Opiates in all weak Persons, such as are fat, those of phlegmatic Habits, and where-ever the Strength is impaired; in which Cases an incautious Exhibition of Opiates may often produce Death. That Opium, in some, proves a Stimulus to Venery, may be easily accounted for, from this Hypothesis; for the Blood in the whole Body, being rarefied, and quickly carried through the Vessels, expands the Muscles of the Penis, by which means it is erected; for Erection is procured not only by the Influx of the Spirits, but, also, by a large Conveyance, and long Continuance, of the Blood to the Penis.

As *Pliny* and *Matthioli* have observed, no Substances are more efficacious for removing the Symptoms brought on by Opiates, than Acids, which, especially when of the volatile Kind, by their acid Spicula, communicate a certain Motion to the Fibres, and partly stop the excessive Rarefaction of the Blood, and hinder the Effects of the sulphureous Vapours. Purgatives, also, and all Substances which produce a Commotion in the Body, have a Tendency to prevent the mischievous Effects of Opiates, because, by these, the Fibres being stimulated to a brisker Motion, the Stagnation in the Head is, by that means, generally render'd less: And in this Case the worst of Symptoms are not to be expected. This Hypothesis is greatly confirmed by a curious History, recorded in *Lentilii Miscell. Med. pract.* where we are told, that, half an Hour after a certain Person had used some Hemp-seeds, there was such an Expansion of the Cranium, that the Surgeon could take the Blood extravasated in the Wound, through the Fissures of the Cranium. Now, that Hemp-seed is possessed of a narcotic Quality, is shewn by *Simon Pauli*, in his *Quadrupart. Botan.* The *Dutroy* is, also, by many Authors who have wrote concerning the *Indies*, accounted a Species of Hemp, as we are informed in *Itiner. Olearii Oriental.* Hence *Lentilius* justly concludes, that the Substance of the Brain is render'd turgid, and possesses more Space, by the Fumes of Opium. Besides, that Narcotics operate by retarding the Motion of the Blood through the Brain, is obvious from dissecting the Carcasses of those who have perished by the Use of Narcotics: Thus *Joach. Cuiusius*, *Lib. 2. de Sensu*, *Cap. 17.* and *Locinus Lemnius de Occ. Nat. Mir. Lib. 2. Cap. 52.* informs us, that, in Subjects of this Kind, the Blood has been found congealed like Ice in the Ventracles of the Brain.

Lastly, That the Effects of Anodynes may be commodiously explained and accounted for from the Rarefaction and Expansion of the Blood and Humours, is obvious from this, that those Substances



stances which produce a rarefactive and expansive Motion in the Blood and Humours, are, also, possessed of a remarkable Power of inducing Sleep. Thus the immoderate Use of Brandy is succeeded not only by profound Sleep, but, also, by a Stupor. And *Platerus*, in *Lib. 1. Observ.* informs us, that he frequently observed, that those who drank immoderately of Brandy, or Aquavite, were first seized with an intolerable Heat; afterwards became stupefied, as if they had taken Opium, and snored till they died. That Amber, Musk, Saffron, Camphire, and Nutmegs, rarefy, expand, and attenuate the Blood, whilst, at the same time, they produce anodyne Effects, is certain beyond Dispute: That Baths for the Head, Feet, and whole Body, dispose to mild and gentle Sleep, is well enough known; which is owing to nothing but their inducing an Expansion of the Humours; by which means they render the Body turgid and inflated; in consequence of which, the Blood moves slowly thro' the Head, and a gentle Sleep succeeds. The vaporous and fragrant Substances, which exhale from Flowers, are, also, possessed of a singular Power of inducing Sleep; for which Reason *Strabo*, in *Geogr. Lib. 65.* affirms, that a Carus may be produced by highly fragrant Substances; for the sulphureous Vapours, being possessed of a remarkable Elasticity, and received into the Pores thro' the Blood, by dilating and expanding it, produce the above-mentioned Effects. 'Tis, also, certain from Experience, that, by means of the incoercible and expansive sulphureous Exhalation arising from live Coals, many have been seized with a Stupor, and sometimes with Death. Instances of this kind frequently occur in practical Authors. But, that, during Sleep, the Humours and whole Habit of the Body are expanded, is sufficiently certain; since, in sleeping Persons, the Inflation of the whole Body and Head is sufficiently conspicuous; and 'tis observed, that the Shoes, Stockings, and other Cloaths of such Persons, are tighter than when these very Persons are awake. Hence, also, the Reason is obvious, why in rainy, warm, and Summer-weather, as, also, in hot Baths, which manifestly rarefy the Blood, Persons are more excited to Sleep, than when the Weather is cold, dry, and serene; because, by this last-mentioned State of the Atmosphere, the Fibres of the Body are more constricted, the Humours more condensed, and the Circulation of the Blood more brisk and accelerated. From what has been said, the Reason is, also, obvious, why Persons in a deep Sleep are commodiously roused by cold Water, or rather Vinegar, apply'd to the Region of the Liver, the Genitals, and the Back: As, also, why Acids, such as Lemon-juice and Vinegar, whether internally or externally used, commodiously remove Sleep and Drunkenness. 'Tis to be cautiously observed, that this Expansion of the Blood and Humours, which is necessary to induce Sleep, and procure a Freedom from Pain, varies much as to its Nature, according to the different Causes by which it is produced. Thus, 'tis a Circumstance of great Importance, by what Anodynes, or somniferous Medicines, the Sleep is induced; for, if it is procured by fragrant Substances, or such as contain a mild and gentle Sulphur, which is friendly to the Spirits, the Symptoms induced are not very dangerous, nor much to be dreaded. But if the Sleep is brought on by a sulphureous, fetid, and foreign Vapour, which is unfriendly to Nature, and the Spirits, then a more terrible Train of Symptoms infallibly succeeds; for 'tis certain, that those Spirits, which are so useful to the Body, and are subservient to Reason, and the Functions of the Mind, derive their Origin from the highly subtile Vapour of the Blood, and the most fine and elastic Portion of the Air. Hence we may easily conceive, that, by Anodyne and Narcotics, our Spirits must be variously affected and changed, so that Opiates and Narcotics exert their Efficacy immediately, not only on the Blood, but, also, on the Spirits.

From what has been said, I think 'tis sufficiently obvious, that Opiates are not without the greatest Caution to be exhibited in those Disorders, where there is a manifest Languor of the Spirits, a Defect of Strength, and an impaired Motion of the Blood, especially in the Head. Hence, in Disorders of the Head, Deliriums, all Fevers, and especially those of the inflammatory Kind, Opiates and Narcotics are either never to be used, or exhibited with great Caution. *Hoffman.*

The Ancients, having experienced, that Opium would often kill, though taken in no large Quantity, ranked it with Poisons; and gave it the first Place among those, which, from their stupefying Quality, they called Narcotic.

True, indeed, it is, that we every Day find this to be, in a small Dose, one of the most noble Remedies in the World. But it is not worth the while to engage in the Controversy warmly debated by some Authors, how far Poisons are medicinal, since it is notorious enough, that Medicines sometimes prove poisonous. And, take the Matter as we please, it may serve to very good Purposes to understand the Manner of Operation of the celebrated *D. u.*, and help us, in a great measure, to ascertain its Use in different Cases, if we are beforehand rightly apprised of its Nature, and Way of acting.

In order hereunto, it is necessary, besides some other Preliminaries, since one of the chief Virtues of this Medicine is hypnoic, to define distinctly what Sleep is, or rather (to avoid Contention and Disputes about Words) what Difference there is in an animal

Body, when asleep, and when awake. For I suppose the History, Manner of preparing, &c. of Opium, to be already sufficiently known.

First, then, there is no one but knows, that in Sleep there is a Cessation from Action. When waking, we walk, discourse, move this or that Limb, &c. but, in natural and undisturbed Rest, there is nothing of all these; that is, whereas, being awake, we perform several Motions by the voluntary Contraction of our Muscles; when asleep, those Muscles only are contracted, whose Action is in a manner involuntary, or to which the Mind has always so constantly determined the Spirits, that it acts by an Habit, without the Intervention of the reasoning Faculty; such are those of the Heart and Breast.

So that there is, at this time, a kind of Relaxation, or Looseness, of the moving Fibres of the several Members, or, at least, in such a quiet Position and State of them, by which all the antagonist Muscles are in an Equilibrium, and Equality of Action, not overpowering one another. For this, indeed, seems to be one great Design of Sleep, to recover, to the Parts over-stretched by Labour, their former Tone or Force; and, therefore, we naturally, when composing ourselves to Rest, put our Body into that Posture, which most favours the particularly-wearied Limbs, and conduces to this End.

In the next place, it is very plain, that there is, in Sleep, not only a Rest and Suspension from acting of most of our bodily Organs, but even of our thinking Faculty too: That is, (for I would prevent Cavils) a ceasing from such Thoughts, as, when waking, we are exercised about, which we reflect upon, and will, to employ our Mind with. For tho' Dreams are Thoughts, yet they are but imperfect and incoherent ones, and are, indeed, either so faint and languid Representations, as to be consistent with our Sleep, as some may be; or else, if they be strong and lively, they are, as every one knows, the Interruption and Disturbance of it.

Hence it will follow, that the Motion of the arterial Fluid must be, *ceteris paribus*, more sedate, even, and regular, in the Time of sleeping than waking; for, besides the various Alterations, which, in the latter State, this receives from the several Passions of the Mind, the very Contractions of the Muscles themselves, in Exercises of the Body, do differently forward its Course; whereas, in Sleep, the Force of the Heart, and pectoral Muscles, being more constant and uniform, gives it a more calm, and equally-continued Impulse.

Hence, also, it will come to pass, that the Influx of the Liquor of the Nerves into the Organs of the Body, as, also, its Reflux towards the Brain, is in Sleep either none, or very inconsiderable; that is, that this Fluid has at this time but little or no Motion: For it is muscular Action and Sensation that require it to be thus determined this Way, or that, which are now hardly any; and yet, by the Arrival of the Blood at the Brain, this Juice will still be separated there, fit to be derived into its Canals or Tubes: So that by these means there will be a kind Accumulation, or laying up in Store, of Spirits for the Offices and Requirements of Waking.

Thus we may, in short, look upon the Time of Watching, as the Time of wearing out, or the Destruction, of the animal Fabric, and the Time of Sleep, as that in which it is repaired and recruited, not only upon the account of what we have just mentioned concerning the nervous Liquor, but, also, with respect to all the other Parts, as well fluid as solid. For Action does necessarily, by degrees, impair the Springs and Organs; and, in Motion, something is continually abraded and struck off from the distractile Fibres, which cannot otherwise be restored, than by their being at Rest from Tension; besides, that such a regular and steady Course of the Blood, as we have observed to be in Sleep, is by far more fit and proper for Nutrition, or an Apposition of Parts to the Vessels, which an uneven Flurry of it is more liable to tear off, and wash away.

The Case being thus, it is very plain, that whatsoever can induce such a Disposition of the Fluids, and muscular Parts, of the Body, as this we have described, will so far cause Sleepiness. And, in like manner, when any thing interposes, and hinders this Composedness and Tranquillity, the removing of the Impediment will be the causing of Sleep; inasmuch as this is only reducing the animal Oeconomy to its right State, in which, by natural Order, there must be a Succession of Sleeping and Waking.

Thus it appears, how necessarily continued Exercises make us sleepy, since these exhaust the Juice of the Nerves, that is, both lessen its Influx into the Organs of Motion, and incline the Mind not to determine it any longer that Way, upon the account of the Pain and Uneasiness, with which too violent a Tension of the Parts is always attended; which, therefore, we must needs desire to relax, or lay to Rest.

That Sleepiness which follows upon a Fullness of the Stomach, after Eating or Drinking, is owing to a different Cause; and, indeed, so nearly falls in with the Effects of opiate Medicines, that it requires a particular Consideration.

As Hunger, or the Emptiness of the Stomach, is a painful Sensation, so the satiating or removing of this, is a pleasing or agreeable one. Now all Pain is a Stimulus upon the Part affected;



and this, we all know, being attended with Contractions of the pained Membranes, causes a greater Afflux than ordinary of the nervous Juice that Way. On the other hand, Pleasure, or a delightful Sensation in any Part, is accompany'd with a smooth Undulation, and easy Reflux, of the Liquor of the Nerves towards the Brain. This is, as it were, the Entertainment of the Mind, with which being taken up, it does not determine the Spirits to the Organs of Motion; that is, there is such a Relaxation of the muscular Fibres, and such a Disposition of the nervous Fluid, as we have observed to be necessary to Sleep.

This is the Reason of that Chilliness of the Limbs, of which we commonly complain after a good Feast.

If it seem strange, that a Pleasure in the Stomach should so powerfully influence the Mind; let it be considered, on the other hand, how violent Effects an uneasy and disagreeable Sense of the same Part produces; what a terrible Agony two or three Grains of Crocus Metallorum throws the whole Fabric into; how readily the Fluid of the Nerves is, with a more than ordinary Impetus, determined and commanded into the Muscles of the Stomach and Abdomen, in order to throw off the Enemy, and remove the ungrateful Sensation.

Now the Consequences, which we have ascribed to a pleasing Sense in this Part, are only just the contrary of these we find the opposite Affection of Pain induces. And, indeed, Pleasure and Pain are two great Springs of Action in the animal Economy; the Changes they make in the Fabric are the Causes of many Effects which seem surprising, because we do not regard the Mechanism by which they are produced; but these must be more considerable in the Stomach, than any-where else; this Part being, for very wise Purposes, of so acute a Feeling, that some Philosophers have, for this Reason, thought it to be the Seat of the Soul.

Besides this Consideration, we must take notice, that the Stomach, being distended with Food, presses upon the descending Trunk of the Aorta, and thus causes a greater Fulness of the Vessels in the upper Parts; whereupon the Brain is loaded, or the Derivation of Spirits into the Nerves diminished, and Unactivity, or Drowsiness, ensues. Hence proceed those Flushings in the Face, Redness, &c. after plentiful Eating or Drinking, most visible in those, whose Vessels are lax and weak, as in exhausted and hectic Persons they more especially are.

Thus we may, without the Assistance of the new Chyle entering into the Vessels, account for that Inclination to Sleep, which follows upon a full Stomach. Though we must, also, allow the Distention from this, to be a considerable Cause of the same Effect; but this does not happen immediately, nay, sometimes, perhaps, not within two or three Hours after eating; and, therefore, the sudden Drowsiness must (as well as the present Refreshment and Reviving which Meat gives) be chiefly owing to some more speedy Alteration.

We come, in the next place, to Opium itself; the chymical Analysis of which, out of one Pound, affords a volatile Spirit of the like Nature with that drawn from Hartshorn, five Ounces and five Drams; of a fetid Oil, one Ounce two Drams and an half; of Caput Mortuum, smelling like Spirit of Hartshorn, seven Ounces and six Drams.

The Virtues, therefore, of Opium are owing to a volatile alkaline Salt, intimately mixed, and combined with an oily sulphureous Substance; the Effects of which we must consider, first, of all, upon the Stomach, and afterwards, when they have passed the Primæ Viæ, upon the arterial Fluid itself.

An agreeable Sensation, produced in the Stomach, together with a Distention of its Membranes, we observed before to be the Cause of that Sleepiness to which we are so prone after Eating. The one of these engages the Mind, the other acts upon the Body. For Pleasure amuses the Soul, as it were, so that it does not think, or exercise itself, about any outward Objects; that is, is inclined to Rest. And the Fulness of the Vessels in the Brain checks and hinders, in some measure, the Derivation of the nervous Juice into the Organs, &c.

Now, if they who take a moderate Dose of Opium, especially, if not long accustomed to it, are so transported with the pleasing Sense it induces, that they are, as they oftentimes express themselves, in Heaven; and tho' they do not always sleep, (which proceeds from the Presentation of pleasing Images to the Mind, being so strong, that, like Dreams, they over-engage the Fancy, and so interrupt the State of Rest) yet they, however, enjoy so perfect an Indolence and Quiet, that no Happiness in the World can surpass the Charms of this agreeable Ecstasy.

Thus we have, from this Medicine, but in a far more eminent Degree, all those Effects, which we observed to follow upon that grateful Sense in the Stomach, which a moderate Fulness produces. For no Bodies are so fit and able, pleasingly to affect our sensible Membranes, as those which consist of volatile Parts, whose Activity is tempered and allayed by the Smoothness of some lubricating and oily ones; which, by highly rarefying the Juices of the Stomach, and causing a pleasant Trillation of its nervous Coat, will induce an agreeable Pleasure, and entertain the Mind with Ideas of Satisfaction and Delight.

The Cause being thus, we enquire upon what Mechanism the

other Virtues of Opium depend, its easing Pains, checking Evacuations, &c. not only in that the Mind, being taken up with a pleasing Sense, is diverted from a disagreeable one; but, all Pain being attended with a Contraction of the Part, that Relaxation of the Fibres, which is now caused, eludes and destroys the Force of the Stimulus.

In like manner, in immoderate Secretions, there is, most commonly, an Irritation of the Organs, the Removal of which will abate the Discharge. And herein lies the incrassating Quality of this Medicine, in that the twitching Sense upon the Membranes of the Lungs, Bowels, &c. being now lessened, the sharp Humour is suffered to lodge there in a greater Quantity, before it is so troublesome, as to be thrown off, and expelled; it being all one, as if there were no Irritation of the Part, if the uneasy Sense thereof be not regarded by the Mind. These Effects will all be heightened by the Mixture of the opiate Particles with the Blood; which is hereupon rarefied, and distends its Vessels, especially those of the Brain; and thus still, to a greater Degree, lessens the Influx of the nervous Fluid to the Parts, by pressing upon the little Tubuli, or Canals, through which it is derived.

This is the Reason of that Difficulty of Breathing, which they for a time experience, who take this kind of Medicine; this Symptom being inseparable from the Rarefaction of the Blood in the Lungs.

Hence it appears, that the Action of Opium is very analogous to that of other volatile Spirits, only, that a small Portion of it has a Force equal to that of a greater Quantity of them.

This is very evident in those who accustom themselves to take large Doses of it; as the *Turks* and *Persians* do to that degree, that it is no uncommon thing there, to eat a Dram or two at a time; for the Effects of it, in them, are no other than downright Drunkenness; upon which account, it is a common Saying with them, and on the same Occasion, *He has eat Opium*; or, with us, *He has drank too much Wine*.

Neither do they otherwise bear such large Quantities of it, than our Tipplers will a great deal of Brandy; that is, by habituating themselves to it by degrees, beginning with small Doses, and requiring still more and more, to raise themselves to the same Pitch. Just as *Galen* tells us of a Woman, at *Athens*, who, by a gradual Use, had brought herself to take, without any Hurt, a considerable Quantity of Cicuta, or Hemlock: Which Instance is the more to our Purpose, because *Nic. Fontanus* knew one, who, being recovered of the Plague, and wanting Sleep, did, with very good Effect, eat Hemlock for some time, till, falling ill again of a Fever, and having left off the Use of this Remedy, he endeavoured to procure Rest by repeated Doses of Opium, which (Nature having been accustomed to a stronger Alterative) had no Operation, till the Help of Cicuta was again called in with desired Success.

It is a sufficient Confirmation of all this Reasoning, that *Prosper Alpinus* observed, among the *Egyptians*, those who had been accustomed to Opium, and were faint and languid thro' want of it, (as Drinkers are, if they have not their Spirits) to be recovered and put into the same State of Indolence and Pleasure, by large Doses of *Cretic Wine*, made hotter by the Infusion of Pepper, and the like strong Aromatics.

Nor is it, perhaps, amiss to remark, that in maniacal People, as is frequently observed, a quadruple Dose of Opium will scarce produce any considerable Effect. Now, in Persons so affected, the Mind is deeply engaged, and taken up with some Images or other, as Love, Anger, and the like; so that it is not to be so easily moved or diverted by those pleasing Representations which it would attend to at another time, and upon which the Virtues of this Medicine, in a great measure, depend. Beside this, those who are maniacal, to a Wonder, bear the Injuries of Cold, Hunger, and the like, and have a prodigious Degree of muscular Force, which argues the Texture of their Blood to be very strong, and the Cohesion of its Globules great; so that the spirituous Parts of the Opiate cannot make that Disjunction and Rarefaction of this Fluid in them, which it does in ordinary Bodies and Constitutions.

Many are the Improvements which might be made of this Theory, with relation to the Practice of Physic; but these will be obvious enough to one instructed in the animal Economy.

To conclude, then, as to the Subject in Hand, it is very plain, that there needs no more to make Opium prove destructive, or a Poison, than to take too great a Quantity of it; for, then, it must inflame the Stomach, and rarefy the Blood to such a Degree, that the Vessels cannot again recover their Tone; whereupon apoplectic Symptoms will ensue.

To be convinced of this, I forced into the Stomach of a small Dog about half a Dram of crude Opium, dissolved in boiling Water. He quickly vomited it up, with a great Quantity of frothy Spittle; but, repeating the Trial, by holding up his Head, and beating him, I made him retain three or four Doses, intermitting between each, about a quarter of an Hour: When he had thus taken, as I could guess, near two Drams, I watched him about an Hour; then he began to sleep, but presently started up with Convulsions; fell into universal Tremblings; his Head constantly twitched and shaking; he breathed short, and with Labour; lost entirely the Use, first, of his hinder Legs, and, then,



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then, of the fore ones, which were stiff and rigid, like Sticks. As he lay snorting, to hasten his End, I was giving him more of the Solution; but, on a sudden, his Limbs grew limber, and he died.

Opening his Stomach, I found it wonderfully distended, tho' empty of every thing, but some Water and Opium; Parcels of frothy Mucus swimming in it; the Inside was as clean, as if scraped and washed from all the Slime of the Glands, with some Redness here-and there, as in a beginning Inflammation. The Pylorus was contracted. The Blood-vessels of the Brain were very full; and I took out a large Grume of concrete Blood from the upper Part of it, cutting into the Sinus Longitudinalis, as it is not uncommon in apoplectic Carcases; but found no extravasated Serum in the Ventricles, nor among any of the Membranes.

As to the Cure of such a Case, besides other Evacuations, acid Medicines, and lixivial Salts, must certainly do Service; these, by their diuretic Force, causing a Depletion of the Vessels. This is the Foundation, upon which *Starkey* compounded his *pacific Pill*. Generous Wine, which the Antients gave for an Antidote, can be no otherways useful, than as it dissolves the resinous clammy Parts of the Opium sticking to the Coats of the Stomach, and so forwards its Expulsion by other Helps, which cause a Contraction of the muscular Fibres. *Mead on Poisons*.

One *Mustapha Shatoor*, an Inhabitant of *Sedique*, a Village six Miles from *Smyrna*, by Trade a Coffee-man, about forty-five Years old, a most famous Opium-eater, told me, that his constant eating was three Drams a Day of crude Opium, one half of which was his Dose in the Morning, and the other half in the Afternoon; but that he could safely take double this Quantity. Resolving therefore to be an Eye-witness of what he could do, I provided the best Opium I could get, and weighed it nicely into Drams: He came to me, at my Desire, at Nine in the Morning; but excused his having taken half a Dram before, because he had not Strength to rise out of his Bed without it. I laid before him my Opium made up in Pills, each weighing a Dram, and desired him to eat what he pleased; he took one Dram and an half, making it up in three Pills; and, chewing it with a little Water, he commended the Opium; but was not willing to eat more at a time, and I would not press him for fear of Accidents. He staid with me about half an Hour, after he had eaten the Opium: The visible Effects it had upon him, were to make his Eyes sparkle, and to give a new Air or Life and Brightness to his Face. He told me, that he was extremely refreshed by my Entertainment; and I found him half an Hour afterwards labouring heartily at cleaving Wood to burn: At Three in the Afternoon he came to me again, and took the same Quantity as in the Morning, and the same Symptoms appeared. He says that it has always the same Effects, giving him Vigour and Spirit; and is now become as necessary to him, as any other Part of his Sustenance; and that it makes him fitter for Procreation; for he has many Wives and Children; that it never affects him with Sleep and Drowsiness, but rather hinders his reposing when he happens to take too much of it; that he entered upon this Practice twenty-five Years ago, beginning with the Bigness of a Grain, and so training up Nature gradually to larger Quantities; and that the Want of it, and the Desire of taking more, grow daily upon him.

The Alteration and Impairment, which this Custom has produced in him, are Weakness, his Legs being small; his Gums eaten away, so that the Teeth stand bare to the Roots; his Complexion very yellow, and appearing older by twenty Years, than he really is.

Opium is commonly taken by the Messengers in *Turky*, who are employed in making quick Dispatches; 'tis generally part of their Provision: They take it when they find themselves tired, and it gives them Strength and Spirit to proceed. I had the following Relation of one of them, that, coming from *Constantinople* to Mr. *Samuel Barnardiston*, a Merchant of *Smyrna*, at entering into a Gentleman's House, he fell down for dead; at which when the whole House was surpris'd and concerned, one of the Servants rightly judging, that this fainting away was occasion'd by the Stock of Opium laid in for his Journey being spent, forced a little of it into his Mouth; and by this means he recovered presently, and acknowledged the Servant had been his Physician.

The *Turks* use Opium made up with something that renders it palatable, at their Feast called *Biram*, to make them chearful; which may be one Reason of its prevailing so much; for, finding it then entertains with pleasing Fancies, they are tempted to continue it; and so the Use of it becomes necessary, and grows upon them. *Philosophical Transact. Abr. Vol. 2.*

Some pound the Heads and Leaves together, then subject them to the Press, afterwards bruise them in a Mortar, and so reduce them into Troches; this Preparation is called *Meconium*, and is more gentle than Opium [*ὁπὶον*]. The Way of preparing the Juice, or Oplum, is, first, after the Dew is dry'd up, to cut out the Star [in the Head of the Poppy] with a Knife, in so clean a manner, that none of it be forced inwards, and

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then to make straight, but slight, Incisions at the Sides of the Head, which will be follow'd by an Eruption of the Tear, to be wiped off with the Finger into a Saucer. And, if you return after a little while, you will find more of the Tear condensed, and so again the next Day; after this pound the Whole in a Mortar, and, reducing it into Troches, lay them up for Use. By way of Caution, when you cut the Poppy, take care to retire back, that the Juice might not be wiped off in your Clothes. *Dioscorides, Lib. 4. Cap. 65.*

OPOBALSAMUM. See BALSAMUM.

OPOCALPASON, OPOCARPASON, *ὀποκάρπασον*, the Juice of a Tree called *Calpasi*; this Juice resembles Myrrh; but is poisonous and deadly, inducing a Strangulation. *Galen, de Antidot. Lib. 1.* says, that in the Course of his Time he had observ'd the fatal Effects in many, who had ignorantly taken Myrrh mix'd with *Opocalpasum*. For they who prepare Antidotes, he says, purposely mix this as an Ingredient, taking it for the best Sort of Myrrh; because they had observ'd it to be a very good Medicine in Collyria, where it attenuates Sanies without Corrosiveness, and sometimes removes an incipient Cataract. And if you put, says he, this Kind of Myrrh into a Plaster, Cerate, or any attenuating Medicine, to be outwardly apply'd, you will increase its Virtue, but the Effects of it taken into the Body are deadly.

OPODELDOC. The Name of a Plaster said to be invented by *Mindererus*, tho' often mention'd by *Paracelsus*. See EMPLASTRUM.

There is a famous popular Ointment, which goes by the Name of *Opodeldoc*; which is said to be thus prepar'd.

Take of the Roots of Marshmallows, Comfrey, Gentian, Long-birthwort, Angelica, of each one Ounce and an half; of the Herbs Sanicle, Ladies-mantle, Moute-ear, Colts-foot, Snakewood, Periwinkle, bruised, of each half an Handful; of the Leaves of Rosemary, Sage, and Lavender, of each one Handful and an half; Flower of Rosemary, Sage, and Lavender, of each one Handful; Juniper-berries, two Ounces; Cumin-seeds, one Ounce; Camphire and Castor powdered, of each one Ounce and an half; and of Spirit of Wine, three Pints and an half.

Put all into a Glas Cucurbit, well luted, and digest for ten Hours in Balneo Mariæ, that is, in hot Water, but not to boil; then strain; and, the Spirit of Wine being sufficiently impregnated with the Ingredients, then add one Pound of Castile Soap shaved thin; then digest in the same manner as before, until the Soap is dissolved.

## A FARTHER EXPLANATION.

Lute the Juncture carefully, with two or three Doubles of Paper, daub'd over with the White of Eggs, and tied about with Thread; the Luting being dry'd, then digest in Balneo Mariæ for ten Hours, the Matrafs being fix'd in the middle of the Kettle, with a Layer of Straw under it, to keep it at the Distance of two Inches from the Bottom: For the first eight Hours, keep the Water so hot about it, that you can scarce hold your Finger therein; and the two other Hours augment the Heat, but not so much as to make the Water boil.

After the Spirit of Wine is thoroughly impregnated with the Tincture of the Roots, Herbs, Leaves, and Powders, cool it gently; and, straining it thro' a Linen Cloth, pour it again into the Matrafs, with one Pound of Castile Soap shaved thin; then fit the Vessel of Rencontre to the Matrafs; lute the Junctures, and digest as before, till the Soap is entirely mix'd with the Spirit, and the Whole reduced to an Ointment; then take out the Matrafs, and suffer it to cool.

If the Doses, and other Directions, are duly observed, it will be the Consistence of an Unguent, neither too thick or thin; and the Method of trying if 'tis truly prepared, is, to rub some of it on your Hand, which it will immediately penetrate, leaving only a greenish Stain; tho' the natural Colour of the Ointment is brown.

'Tis excellent in Strains, Relaxations of the Sinews in Horses, as well as human Kind; also, in all Pains, Numbness, Weakness in the Joints, or other Parts, being well rub'd in.

## ITS SUCCEDANEUM.

Take of Castile Soap, two Ounces; of rectify'd Spirits of Wine, four Ounces; and of Camphire, two Drams; Mix.

OPOPANAX. C. B. P. 494. Schrod. 4. 408. Raii Hist. 1. 411. Mill. Bot. Offic. 321. Park. Theat. 1544.

This is a Gum which is brought from *Turky*, flowing, as is generally believ'd, from the wounded Root of a Species of *Panax Heracleum* call'd by *Gerard*, *Panax Heracleum majus*; and by *Boerhaave*, *Pastinaca*, *Oluſatri folio*.

The best *Opopanax* is of a deep-yellow Colour, but whiter within, in large Drops, but yet usually sticking together, of a

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very



very strong, not unpleasant Smell, and of a warm bitterish Taste, easily dissolving in Water, which it turns of a milky Colour.

This Gum is heating, dissolving, and evacuating tough Phlegm, from the remote Parts of the Body, and on that Account is useful against old Coughs and Asthmas; it helps the Gout, Seratica, and rheumatic Pains in the Limbs; and is very good to procure the Catamenia: Outwardly applied, it is good to dissolve hard Swellings, Tumors, pestilential Buboes; and to cure the Biting of mad Dogs, and other venomous Creatures. *Miller's Bot. Off.*

*Geoffrey* says, the Dose is from twenty Grains to a Dram, and it is an Ingredient in many Compositions. See PANAX *Hieracium*.

OPOPIA, ὀπώτια, the Plural of ὀπώτιον, *Oporion*, from ὤψ, the Eye, in *Hippocrates* πρὶ ὀρέων ὄψ. are the Bones of the Eyes.

OPOPYRON *Laudani*. A Name given by *Paracelsus*, de *Vita longa*, Lib. 2. Cap. 5. to a Remedy, which, he says, removes a Fever, and prevents its Dilatation, as he calls it. *Oporpura* is the Name of a Composition, in *Antid. Nicolai Operum Mesue*, against spasmotic and paralytic Affections.

OPORE, ὀπύρον, has two Significations; for, first, it means a certain Season of the Year, or the latter Part of the Summer, comprehending half, or but one Third of it, according to the various Divisions of the Antients. *Galen. pluribus Locis*. Some by ὀπύρον understand the Autumn. Secondly, it often signifies the Fruits which come to Maturity in the aforesaid Season, particularly Figs and Grapes; but *Hippocrates*, as he is generally rendered by Interpreters, uses the Word ὀπύρον to signify Autumnal Fruits and principally Apples.

OPORICI, ὀπυρικῆ, from the preceding Word, is a noble Remedy, as *Pliny* calls it, composed mostly of Fruits of Trees. It consists, he says, of five Quinces with their Seeds, as many Pomegranates, a Pint of Services, and a like Measure of what they call *Rhus Syriacum*, (Syrian Sumach) with half an Ounce of Saffron, put all together into a Congius of white Must, and boiled over a gentle Fire to the Consistence of Honey; it is excellent for Dysenteries, and Disorders of the Stomach. *Pliny, Lib. 24. Cap. 14.*

OPOS, ὀπός, Juice, in general, but more particularly the crude Juice of Plants, whether expressed, or distilling spontaneously; *Galen. Simp. Facult. Lib. 1. Cap. 36.* Ὀπός, taken simply, or by way of Eminence, signifies, in *Hippocrates*, according to *Galen* in his *Exegesis*, the Juice of Silphium or Laser, as the general Word καυλός (*Caulos*) a Stalk, in the same restrained Sense, signifies only the Stalk of that Plant; tho' *Hippocrates, Lib. 7. Epid.* and in many other Places, chuses to express the same by ὀπός σιλπίου, "the Juice of Silphium," at large. The Word has been found, also, to signify not only the Juice of the Laser, but the very Silphium, and Laserpitium; thus *Galen*, in his *Exegesis*, expounds καρπὸν ὀπύ, "the Fruit of the 'Opor,' by σιλπίου σπέρμα, the Seed of the Silphium;" which, he says, is, also, called by some *Phyllon* and *Magydaris*. Ὀπός, among the Antients, was usually put, also, for the milky Juice of the *Ficus* and *Caprificus*, with which they used to curdle their Milk. *Castellus. Foefius*.

OPPIATIO, from *oppilo*, of *pilo*, to condense, to compact, Oppilation, is a very close kind of Obstruction; for *oppilare* imports not only *occludere*, to shut up, but *implere*, to fill. *Rhodus in Lexic. Scribon.* See OBSTRUCTION.

OPRIMECHIOLUM, a Term coined by *Paracelsus*, by which he would express all sorts of Fumes arising from Copper.

OPSIGONOS, ὀψιγονος, from ὀψέ, an Adverb signifying Lateness of Time, and γίνομαι, to be generated, is an Epithet of those last *Dentes molares*, which are latest in appearing, and discover themselves at an adult Age. They are, also, called *Crauterer* and *Sapronestheres*, σωρηονιστήρες, or *Dentes sapientie*. See CRANTERES.

OPSIS, ὄψις, from ὀπσμαι, to see, in *Hippocrates*, is the Pupil of the Eye, as appears from several Places in 2 *Prorrhet.* Sometimes, however, it means the whole Eye, or Vision itself, as *Lib. πρὶ ὀψιος*, and in *Prognostic* and *Coac.* Again, it signifies the Aspect, Countenance, or whatever appears to View: Thus *Lib. de R. P. I. A.* εἰσὶ δὲ ὄψεις πολλαὶ τῶν καμνόντων "Various are the Aspects of the Sick:" On which *Galen* commenting says, ὄψις ἐνερκεν ἀσυνεὶ διαφορὰς, ἢ τρόπους, &c. "He said 'Aspects,' that is, Differences, Modes, or Forms of the Patients, 'instead of saying, Various are the Forms of the Diseases with 'which the Patients are affected.' And again he says, ὄψις οὐκ εἶπε καμνόντων, &c. "The Differences or Alterations which 'we find in the Sick, upon a thorough View, he calls *Opfier*, 'Aspects.'"

OPS Metallum. Quicksilver. *Rulandus*.

OPSOMANES, ὀψομανής, from ὀψον, Food, and μαίνομαι, to be mad, one who is particularly fond of this or that sort of Food, beyond all Reason. *Castellus*.

OPSON, ὀψον, in Latin *Opsonium*, corruptly *Obsonium*, in general signifies all sorts of Food which are brought to Table, except Bread and Wine. *Athenaus, Lib. 7.* restrains it to Meats

prepared by the Fire. Among the Antients, the Term *Opson* was more peculiarly appropriated to Fish; whence φίλοψοι (*Philopsoi*) and ὀψοφάγοι (*Opsophagi*) are Persons who are great Lovers of Fish. *Foefius. Castellus*.

OPULUS. The Gelder Rose.

The Characters are;

The Leaves are like those of the Maple-tree: The Flowers consist of one Leaf, which expands in a circular Rose-form, and is divided at the Top into five Parts; these are collected (for the most part) in form of an Umbel, the largest of which grows on the Outside; and are barren; but those in the middle are fruitful, producing red Berries, in each of which is contain'd one flat Heart-shap'd Seed.

*Boerhaave* mentions two Sorts of *Opulus*; which are,

1. *Opulus. Ruellii* 281. *Sambucus aquatica, flore simplic.* C. B. P. 456. *Sambucus aquatica.* J. B. 1. 552.

2. *Opulus; flore globofo.* T. 607. *Sambucus aquatica, flore globofo pleno.* C. B. P. 456. *Sambucus rosea.* J. B. 1. 553.

Besides the two foregoing Species of *Opulus*, *Miller* mentions a third; which is,

*Opulus, flore globofo, folio variegato.*

There are no medicinal Virtues ascrib'd to either of these Plants at present, that I know of.

OPULUS is, also, a Name for the second Species of ACER; which see.

OPUNTIA.

The Characters are;

The Flower consists of many Petals, which expand in form of a Rose, having a great Number of Stamina in the Centre, which grow upon the Top of the Ovary: The Ovary afterwards becomes a fleshy umbilicated Fruit, with a soft Pulp inclosing many Seeds, which are, for the most part, angular.

*Boerhaave* mentions eleven Species of *Opuntia*; which are,

1. *Opuntia, maxima; folio spinoso; latissimo, & longissimo.* T. 240. *Ficus, Indica, seu Opuntia maxima, folio spinoso, longissimo, & latissimo.* H. L.

2. *Opuntia; major; validissimis spinis munita.* T. 139. *Ficus Indica, seu Opuntia major, folio spinis longissimis & validissimis armato.* Breyn. Prod. 1. 35.

3. *Opuntia; folio minori; rotundiori, & compressiori.* H. L. T. 239.

4. *Opuntia, folio spinoso, longissimo & angusto.* H. L. T. 240.

5. *Opuntia; folio oblongo media.* T. 239. *Ficus, Indica, folio oblongo, media.* H. R. Par. 70.

6. *Opuntia; vulgo; Herbariorum.* J. B. 1. 154. *Tourn. Inst.* 259. *Boerb. Ind. A.* 2. 82. *Opuntia. Offic. Ficus Indica.* Ger. 1329. *Emac.* 1512. *Ficus Indica, spinosa, major.* Parkinson. Theat. 1497. *Ficus Indica major.* Parad. 433. *Raii Hist.* 1464. *Ficus Indica folio spinoso fructu majore.* C. B. P. 458. *Tuna Indorum.* Jonst. Dendr. THE PRICKLY PEAR-TREE.

The only Parts of this Tree which are us'd, are the Fruit and Leaves; which are of a refrigerating and moistening Quality, and good for extinguishing burning Fevers, and allaying Thirst. *Dale*.

7. *Opuntia; minima; folio subrotundo.* T. 240. *Ficus Indica, minima, folio subrotundo.* H. R. Par.

8. *Opuntia; Curassavica; minima.* H. Beaum. *Ficus Indica, seu Opuntia Curassavica, minima.* H. A. 1. 107.

9. *Opuntia; Hagelliformis, angustissimis, longissimis foliis.*

10. *Opuntia; latifolia; crassiori folio, spinis albis numerosis armato.*

11. *Opuntia; folio plano, glabro, Scolopendriae.* *Ficus Indica, Scolopendriae folio, Epiphyllitis.* Par. Bat. App. 8. *Boerb. Ind. alt. Plant. Vol. 2.*

See COCHINILLAS.

OPUNTIODES. A marine Plant.

The Characters are;

It is brittle and hard, and in Shape like the *Opuntia*.

*Boerhaave* mentions two sorts of *Opuntioides*; which are,

1. *Opuntioides marina; parva, forma Trichomanis.*

2. *Opuntioides marina; quæ Corallina latifolia; & Opuntia marina.* *Plukn. Phys. T.* 26. 1. *Scutellaria, seu Opuntia marina* J. B. 3. 802. *Lichen marinus.* Clus. H. 2. 250. *Sertolara.* Imper. 653. *Boerb. Ind. alt. Plant. Vol. 1.*

It is esteem'd good against the Worms.

OQUICHITLI. A Name for the *Tagetes; Indicus; medius; flore simplici, luteo pallido.*

ORBICULARE OS. The Name of a small round Bone, in the internal Ear. See AURIS.

ORBICULARIS. A Name for the Fungus, call CREPITUS LUPI. *Blancard*.

ORBICULARIS MUSCULUS. The Name of a Muscle of the Eye-lids. See OCULUS.

ORBIS. The Name of a large Sea-fish, cover'd with an hard rough Skin, but without Scales, of which there are many Species. It is thus call'd because of its orbicular Form. The Teeth are recommended as astringent, and good to stop Diarrhoeas and Hæmorrhages, taken in Powder.



**ORBITA.** The Orbit of the Eye; or circular Cavity, in which the Eye is plac'd.

**ORCA.** The Name of a very large Sea-fish, of the cetaceous Kind, shaped like a Dolphin, but much larger, some weighing a thousand Pounds. The Fat is said to be resolvent.

**ORCHEA,** ὄρχεα, is explain'd by Galen, in his *Exegesis*, ὄρχος, the *Scrotum*.

**ORCHESTÆ ACOPON.** The Name of an *Acopon* recommended by *Aetius Tetrabib.* 3. *Serm.* 4. C. 5.

**ORCHESTÆ UNGUENTUM.** An Ointment describ'd by *Aetius, Tetr.* 3. *Serm.* 4. C. 44.

**ORCHILUS.** A Bird, said to be a Friend to the Crocodile, and Enemy to the Eagle.

**ORCHIS,** ὄρχις. A Testicle. Hence a Plant is thus call'd from the Similitude of its Root to Testicles: Hence the following Plant.

**ORCHIS.**

The Characters are;

The Root is tuberous, and consists sometimes of three, sometimes two Tubera, and sometimes a single Tuber, shaped like Testicles, or fleshy, and resembling an Hand. The Leaves are simple, and like those of the Lily; the End of the Pedicle passes into an oblong, tricapular, trivalve Ovary, pervious in three Places, and containing dusty Seeds. The Flower, seated on the Apex of the Ovary, is of a surprising Contexture, irregularly hexapetalous, collected into Spikes, and hardly to be described.

*Boerhaave* mentions fourteen Species of *Orchis*; which are,

1. *Orchis*; *latifolia*; *hiante cucullo*; *major*. *T.* 432. *Cynosorchis*, *latifolia*, *hiante cucullo*, *major*. C. B. P. 80.

2. *Orchis*; *latifolia*; *hiante cucullo*; *altera*. *Tourn. Inst.* 432. *Boerb. Ind. A.* 2. 152. *Cynosorchis*. *Offic.* *Cynosorchis major*. *Ger.* 156. *Emac.* 205. *Cynosorchis prior Dodonæi*. J. B. 2. 758. *Raii Hist.* 2. 1213. *Cynosorchis latifolia hiante cucullo altera*. C. B. P. 81. *Orchis major latifolia altera*. *Park. Theat.* 1343. **DOG-STONES.**

It grows in the grassy Places about *Basil*; and the Root, which is the Part used in Medicine, agrees in Virtues with those of other Species of *Orchis*.

3. *Orchis*; *morio*; *mas*; *foliis maculatis*. C. B. P. 81. *Park. Theat.* 1346. *Raii Hist.* 2. 1214. *Synop.* 3. 376. *Tourn. Inst.* 432. *Boerb. Ind. A.* 2. 152. *Satyrium mas*. *Offic.* *Cynosorchis morio mas*. *Ger.* 158. *Emac.* 208. *Orchis major, tota purpurea, maculosa altera*. J. B. 2. 973. **MALE SATYRION.**

This *Orchis*, which is the common Satyrion of the Shops, has two oval Roots, about as big as a small Olive, of a whitish Colour, full of a stinky Juice, which, contrary to most other Plants, have several white Fibres growing above them; from these springs a single succulent Stalk, encompassed with three thinning, smooth, Lily-like Leaves spotted with black. The Flowers grow on the Tops of the Stalks in a long Spike or Thyrsus, of a purple Colour; each Flower being of an irregular Form, consisting of six Leaves, somewhat resembling a Galea, with a small Piece of Ear standing erect on each Side, and a broad Labella spotted with deeper Spots. The Seeds are very small, included in a triangular long Capsula; it grows in moist Meadows, and flowers in *April*. The Roots only are used.

They are accounted a Provocative and a Stimulus to Venery, and a Strengtheners of the genital Parts, and help Conception, and for these Purposes are a chief Ingredient in the Electuarius *Diasatyrium*: Outwardly applied in form of a Cataplasm, they dissolve hard Tumors and Swellings.

The only official Preparation is the aforefaid Electuary. *Miller's Bot. Off.*

It grows in Meadows, and Places over-run with Bushes and Brambles. The Root, which is used, is heating and moistening, and of a sweet Taste. Its principal Virtue consists, says *Schroder*, in restoring manly Vigour; it is believed also to strengthen the Uterus, and dispose to Conception.

4. *Orchis*; *morio*; *fœmina*. C. B. P. 82. *Park. Theat.* 1347. *Synop.* 3. 377. *Tourn. Inst.* 433. *Boerb. Ind. A.* 2. 152. *Satyrium fœmina*. *Offic.* *Cynosorchis morio fœmina*. *Ger.* 158. *Emac.* 208. *Orchis minor purpurea, & aliorum colorum cum alis virentibus*. J. B. 2. 762. **FEMALE SATYRION.**

This is a lower and somewhat lesser Plant than the former, having no Spots on the Leaves; the Spike of Flowers is less, and not so beautiful, of a purplish Colour, having the Labella striped with green Stripes; it grows in the like Places with the former, and flowers somewhat later. The Root is much alike, and it is supposed to have the same Virtues.

Though these Plants are used in the Shops for the Satyrion, yet they are not the Satyrion of *Dioscorides*, and the Ancients; that being, as is plainly proved by *Parkinson*, and other skilful Botanists, our common Tulip, which much better answers the Description of *Dioscorides*, than any of the *Orchides*. *Miller's Bot. Off.*

It is as frequently to be met with as the former, and grows in the same Places, but is later in flowering.

These two last Species are of the same Virtues, where it is to be observed, that there are a Multitude of Species of *Satyrium*, or *Orchis*, which may indeed be used promiscuously; yet our Shops have thought fit to make choice of the last-mention'd or Female Satyrion before the rest.

There are two Species of the Satyrion, mention'd by *Dioscorides*, who describes the one of them in the following manner: "Some give the Name Trefoil to Satyrion, because it has three Leaves bending to the Ground, like those of the Dock or Lily; but less, and of a redish Colour. Its Foot-stalk is about a Cubit long, naked and white, like the Flowers of Lilies; its Root is of the bulbous Kind, as large as an Apple, of a darkish-brown Colour, within white, like the White of an Egg, sweet and grateful to the Palate." The other Species he describes thus: "There is another Satyrion distinguished by the Epithet *Erythronium* or *Erythraion*, that is, red; whose Seed is larger than that of a Grain of Linseed, hard, smooth, and shining, and which, as well as the Skin, is said to be a Stimulus to Venery. Its Root is cover'd with a slender rough Bark; but white within, and of a sweet and grateful Taste." Since the Days of *Dioscorides*, there have been great Disputes among the learned Physicians and Botanists concerning this Plant, some ascribing its Name to one, and others to another Plant; but most of them agree, that it belongs to some of the Species of *Orchis*, of which Opinion our Shops, also, are: For this Reason, in a former Work, I gave the same Name to the Roots of the now us'd Satyrion, tho', at the same time, I was not ignorant, that some Authors gave this Name to the *Orchis Palmata*, and others to the *Cynosorchis*. But, having now chang'd my Sentiment, I think the Satyrions of *Dioscorides* are sufficiently determin'd by *Parkinson*, and others, who took them for Species of Tulips, which come the nearest of any to the Descriptions of the two Satyrions given by *Dioscorides*. *Dale*.

5. *Orchis*; *morio*; *fœmina*; *flore roseo*. *H. R. Par.* H. L. 460.

6. *Orchis*; *morio*; *fœmina*; *flore niveo*. *H. R. Par.* H. L. 460.

7. *Orchis*; *morio*; *fœmina*; *flore carneo*. *Commelin. Ind.* 82.

8. *Orchis*; *alba*; *bifolia*; *minor*; *calcar oblongo*. C. B. P. 83. *T.* 433. *Orchis Serapias*. 1. *Dod.* p. 237.

1. **ORCHIS**; **PALMATA**; *pratensis*; *latifolia*; *longis calcaribus*. C. B. P. 85. *Tourn. Inst.* 434. *Boerb. Ind. A.* 2. 152. *Orchis palmata*. *Offic.* *Orchis palmata major mas five Palma Christi mas*. *Park. Theat.* 1356. *Orchis palmata non maculata*. *Raii Hist.* 1222. *Palma Christi mas*. *Ger.* 169. *Emac.* 220. **MALE SATYRION ROYAL.**

It is produc'd in moist and marshy Soils, and flowers in *May*. Its Root is only us'd, and seems in Virtues to agree with the other Species of Satyrions.

2. *Eadem*; *flore carneo*. *Palma Christi crella, flore incarnato*. *H. Eyft.* o. 4. *F.* 5. *Fig.* 3.

3. *Eadem*; *flore albo*.

4. *Orchis*; *palmata*; *pratensis*; *maculata*. C. B. P. 85. *M. H.* 3. 498. *Palmata, speciosiore thyrsis, folio maculato*. J. B. 2. 774. *Satyrium, Basilicum, fœmina*. *Dod.* p. 240. *Palma Christi maculata*. *H. Eyft.* Vern. o. 2. *F.* 17. *Fig.* 3.

5. *Orchis*; *palmata*; *palustris*; *latifolia*. C. B. P. 86. *Palmata, seu Serapias, palustris, latifolia, flore albo subpurpurascete*. J. B. 2. 775. *Satyrium Basilicum, foliosum*. *Dod.* p. 241.

6. *Orchis*; *Lilifolia*; *minor*; *tabuletorum Zelandiæ & Bataviæ*. J. B. 2. 770. *Chamaorchis, Lilifolia*. C. B. P. 84. *Pseudo Orchis bulbosa, Lilifolia, palustris, nostras, flore subviridi*. *M. H.* 3. 500. *Boerb. Ind. alt. Plant.* Vol. 2.

Besides the foregoing Species of *Orchis*, *Dale* mentions the five following;

1. *Satyrium vel Orchis*. *Offic.* *Orchis militaris major*. *Tourn. Inst.* 432. *Orchis stratiotica major*. J. B. 2. 758. *Orchis stratiotica*. *Ger.* 165. *Emac.* 215. *Raii Hist.* 2. 1215. *Cynosorchis militaris major*. C. B. P. 81. *Cynosorchis militaris five stratiotica major*. *Parkinson. Theat.* 1345. **THE FRENCH SATYRION.**

This Species of Satyrion is produc'd in mountainous Places, and flowers in *June*: Its Root is only us'd, and is possess'd of the same Virtues with the former Species of Satyrions.

2. *Orchis Hermaphrodita bifolia*. J. B. 2. 772. *Raii Synop.* 3. 380. *Raii Hist.* 2. 1221. *Orchis Hermaphrodita*. *Ger.* 162. *Emac.* 211. *Orchis bifolia altera*. C. B. P. 82. *Tourn. Inst.* 433. *Orchis serapias bifolia, trifolia minor*. *Park. Theat.* 1350. **BUTTERFLY or GERMAN SATYRION.**

This Species is produc'd in Woods, and flowers in *May*. Its Root is used, and is possess'd of the same Virtues with the other Satyrions.

3. *Serapias*, *Offic.* *Serapias five Saleps*. *Marl. Obs.* *Orchis fœmina procerior, majore flore*. *Tourn. Herbar.* Par. 508. *ex sententia nuperi amici celeberrimi D. Gulielmi Sherardi, LL. D. SALOP.*

This is an oblong, somewhat clear, and pellucid Root, of a yellowish-white Colour, very hard and almost horny, somewhat



what flat and wrinkled; of very little Smell, having a mucilaginous Taste. It is brought over from *Turky*, and seems to be the dried Root of some Species of *Orchis*.

Of this a Decoction is made, and drank hot, like Tea; being accounted analeptic and strengthening, proper to prevent Miltarrage; and, like Satyrion-root, is supposed to be a Provocative to Venery. *Miller's Bot. Off.*

This is the Root of a kind of *Orchis*, or *Satyrion*, which grows on the Mountains of *Burfa*, near *Constantinople*. The *Turks* pretend, that it is very effectual in restoring decay'd Strength, and exciting Venery. It is, also, said to prevent Abortion; and is used both in Substance, and in Infusion. *Geoffroy*.

The Taste of the Root resembles that of Gum *Tragacanth*, but has no Stench, and is accounted good against Sterility. It is to be prepared in the same manner with Chocolate.

The *Turks* and *Persians* call the Roots of the *Orchis*, *Salop*; and of it prepare a Drink with Milk and Ginger, which they also call *Salop*, which they drink hot, and esteem an excellent Medicine against Venereal Disorders.

They chiefly use the Root of the *Orchis morio famina*, of *Caspar Bauhine*, which is most copiously produced, and much broader than that of the Northern Countries; nor does the *Orchis famina procerior, majore flore*, of *Tournefort*, seem to be a different Species. *Dale*.

4. *Tragorchis*. Offic. *Tragorchis maximus*. Ger. 160. Emac. 217. *Tragorchis maxima*. Park. Theat. 1348. *Orchis barbata, odore brevi, brevius longioreque folio*. C. B. P. 82. *Tourn. Inst.* 433. *Orchis barbata fetida*. J. B. 2. 756. *Raii Hist.* 2. 1212. *Simpson* 3. 376. *Orchis, Cynorchis, Satyrium*. Chab. 146. COATS STONES.

This is only produced in fat Soils, and flowers in *May* and *June*. Its Root is only used; and, in Virtues, agrees with the *Satyrion*. *Ibid.*

5. *Triorchis*. Offic. Ger. 167. Emac. 218. *Triorchis alba, odorata major & minor*. Park. Theat. 1354. *Triorchis vel Tetrorchis alba, odorata major*. C. B. P. 84. *Orchis spiralis alba, odorata*. J. B. 2. 769. *Raii Hist.* 2. 1217. *Synop.* 3. 378. *Tourn. Inst.* 433. TRIPLE LADIES TRACES.

This is produced in dry Soils, and flowers in the Autumn. Its Root is, also, used, and agrees in Virtues with the former. *Dale*.

ORCHOS, ὄρχος, the Extremities of the Eye lids, where the Eye-lashes grow.

ORCHOTOMIA. Castration. *Orchotomus* is the Person who performs this Operation.

OREGIOELIA. Chluisi. The Name of an *Indian* Flower, which is mix'd with Chocolate, in order to communicate to it a fragrant Smell, and agreeable Taste. It is, also, called *Xochimacaztlic*, and *Orejuelas*. *Raii Hist. Plant.*

ORELLANA. A Name for the *Mitella*; *Americana*; *maxima*; *tinctoria*.

OREOSELINUM.

The Characters are;

The Root is slenderer than that of the *Daucus*, and not lactescent; the Leaves are like those of the *Apium*, or *Ticuta*; and the Seed is oval, flat, large, striated, marginated; and sometimes calls off its *Involutum*, or Husk.

*Boerhaave* mentions three Species of *Oreoselinum*; which are,

1. *Oreoselinum*; *Apium folio, majus*. *Tourn. Inst.* 318. *Boerb. Ind. A.* 67. *Gentiana nigra*. Offic. *Daucus montanus Apium folio major*. C. B. P. 150. *Daucus Selinoides major*. Park. Theat. 898. *Libanotis Throprasti nigra*. Ger. 858. Emac. 1010. *Libanotis altera quovundam, aliis dicta Cervaria nigra*. J. B. 3. 165. *Raii Hist.* 1. 413. *Laserpitium minus Paludapii folio, semine cristato*, Pink. *Almag.* 207. MOUNTAIN DAUKE.

It grows in the mountainous Parts of *Italy*, and flowers in *July*. The Seed is used, which is of an heating, opening, and inciding Quality; provokes Urine, and the Menfes; expels the Birth, and dissolves Tumors.

2. *Oreoselinum*; *Apium folio*; minus. *Tourn. Inst.* 318. *Boerb. Ind. A.* 68. *Petroselinum montanum* Offic. *Oreoselinum*. Ger. 863. *quoad descript.* Emac. 1015. *Apium montanum vulgatum*. Park. Theat. 927. *Apium montanum nigrum*. C. B. P. 153. *Raii Hist.* 1. 413. *Apium montanum Dalechampii*. J. B. 3. 103. MOUNTAIN PARSLEY.

It grows in the mountainous Parts of *Germany*, and is found in great Plenty on the Sides of the Mountain *Gurca*, not far from *Geneva*; the Root and Seed are used.

As to its Virtues, it is of an heating and drying Quality; and is alexipharmic, sudorific, diuretic, and discutient. Its principal Use is in the Stone of the Kidneys and Bladder; in the Peltence, Flatulencies, and the Strangury. *Dale* from *Schroder*.

3. *Oreoselinum*; *pratensis*; *Cicuta folio*. T. 318. *Daucus, Alsaticus*. C. B. Prodr. 77. *Umbellifera, Alsatica, magna, umbellâ parvâ, subulata*. J. B. 3. 2. 106. *Angelica, pratensis, Apium folio, altera*. T. 313. *Boerb. Ind. alt. Plant. Vol.* 1.

*Oreoselinum Africanum*. A Name for the *Ferula*; *Africana*; *Galbanifera*; *folio & facie Ligustici*.

ORESTIA. This is a Plant mentioned by *Oribasius Medic.* *Collect.* L. 12. which must be different from the *Orestium*; for he describes it as a small Herb, shooting up three or four Digits

above Ground, with Leaves and Branches like those of the *Coronopsis*, or *Gramen*, of an astringent Taste, and a very slender, white, capillary Root, of a vinous Savour, and four Digits in Length; it grows on Hills.

ORESTION. A Name for the *Helenium*, in *Dioscorides*, L. 5. C. 66.

OREXIS; ὄρεξις. Properly Appetite; but it frequently signifies, in *Paracelsus* and *Helmout*, an Heat of the Stomach.

ORGASMUS, from ὄργασμα, to desire vehemently, to be turgid, or, properly, to be in Heat, as certain female Animals are, at certain Seasons of the Year. An Orgasm; that is, a violent Turgescence, and Motion of the Humours.

ORIBASIUS. This Physician, though commonly reckon'd a *Sardian*, was born at *Pergamus*, and bred up, together with *Mag-nus* and *Ionicus*, in the School of *Zeno* the *Cyprian*, who taught then, I suppose, at *Sardis*; though afterwards he removed to *Alexandria*, where he became a famous Professor. *Eunapius*, who had good Knowledge in Physic, and is the same Person, probably, to whom the four Books de *Euporistis*, &c. are inscribed, represents *Oribasius* as the greatest Scholar and Physician of his Time, and a very engaging and agreeable Man in Conversation. He describes him as no less considerable in his Interest, than in his Learning. According to his Account, he contributed very much to the Advancement of *Julian* to the Empire, who, in Return, made him Quæstor of *Constantinople*; and who, as appears by one of his Letters, had an entire Confidence in him. In the succeeding Emperor's Time, through the Envy of his Enemies, he fell into Disgrace, had all his Estate confiscated, was banished, and delivered into the Hands of Barbarians; among whom, in a little Time, by his Courage and Skill, he gained so much Love and Reverence, that they, seeing what great Cures he perform'd, adored him as a God. At last, he was recal'd by the *Roman* Emperor, and flourished in Reputation and Riches, at the very Time when *Eunapius* wrote this Account, which must be near the Year 400; for *Eunapius* was then, as it should seem, in the first Rank of Physicians, and was but twelve Years old at the Death of *Julian*, in 363.

*Oribasius* wrote seventy (according to *Photius*) or (according to *Suidas*) seventy-two Books of Collections, which he compiled not only from *Galen*, but from all the preceding Physicians, and his own Experience, at the Desire of *Julian*; the fifteen first of which are only remaining, and two others, treating of Anatomy, which are called by the Translator, *Rafarius*, the twenty-fourth and twenty-fifth of that Collection. Afterwards he made an Epitome of this great Work, and reduced it into nine Books, for the Use of his Son *Eustathius*. He also wrote four Books about Medicines and Distempers, as was before observed, to his Friend *Eunapius*. Besides these, *Photius* gives an Account of two other Pieces, extant in his Time; one consisting of four, the other of seven Books, which were merely an Epitome of *Galen's* Works, and dedicated likewise to *Julian*. *Paulus* mentions this Epitome; but it is now lost, as are some other Tracts, which *Suidas* takes notice of. There are several Receipts of *Oribasius*, quoted by *Actius*. The Commentaries upon the Aphorisms of *Hippocrates*, put out by *Gunter* under his Name, are, without doubt, spurious.

Dr. *Freind* observes, that *Oribasius* uses a great Variety of Expression, of which we have this Advantage, that often one Place, or one Author, explains another; and this Justice ought to be done to him, that he helps us the better to understand several Passages in *Galen*, relating both to Anatomy and Medicine. He was, by all Accounts, a Man, not only of a great Genius, but of great Business and Experience: And, accordingly, if we peruse him with Attention, which, I believe, has scarce ever been done by those who have pretended to give a Character of him, we shall find very just Rules of Practice laid down in several Cases.

The Works of *Oribasius*, mentioned by *Photius* and *Suidas*, are;

1. Four Books of Medicinal Commentaries, contracted from the Writings of *Galen*, by the Command of the Emperor *Julian* the Apostate, and dedicated to him. These are mention'd by *Oribasius* himself, in the Preface to his *Synopsis*, but have long since been lost; at least, were never published.

2. His *Synopsis*, compiled not only from *Galen*, but other Physicians, by Command of the same Emperor, who had approved the former Work. Of this *Synopsis*, which consisted, according to *Suidas*, of seventy-two Books, there are extant the first fifteen, with the twenty-fourth and twenty-fifth, translated into Latin by *J. Baptista Rafarius*, a Physician of *Novara*, with *Oribasius's* Preface to the Emperor *Julian*.

3. A *Synopsis* of the former seventy-two Books, written after the Death of the Emperor *Julian* to his Son *Eustathius*, and contracted into nine Books. This, also, is extant in the Latin Version of *Rafarius* above-mention'd.

4. *Euporista*, or Medicines easily prepared, in four Books, to *Eunapius*; or, as it is in some Copies, according to *Photius*, to *Eugenius*; but the Copies, made use of by both the Latin Translators, read *Eunapius*. For these four Books were translated into Latin by an *Anonymous*, and published by *J. Richard*, together



ther with *Cælius Aurelianus*, of chronic Diseases at *Basil*, 1529. in Folio, (not printed in Octavo, as it is said in *Merklin's Lindenius renovatus*) and afterwards printed with a new Version, by the above-mention'd *Rasarius*, together with the rest of the Works of *Oribasius*, at *Basil*, 1557. Octavo; and also with the *Medici Principes* of *Henricus Stephanus*, at *Paris*, 1567. Fol. There was an old Manuscript Latin Version of *Oribasius's* Works, very different from that published, both with respect to the Order of the Books, and the Matters treated of in them, in the Library of *René Moreau*, as we are told by *Labbeus*, *Bibl. novæ Manuscrip.* p. 214. There is, also, an Epitome of the Writings of *Oribasius*, composed at the Command of the Emperor *Constantinus Porphyrogenitus*, by one *Theophanes*, in Greek, which lies, somewhere or other, in Manuscript, in the Emperor's Library. *Fabricii Bibl. Vol. 9. p. 451.*

To this Account we are to add, that the six first Chapters of the fifth Book of the *Synopsis*, and the fourteenth Chapter of the first Book to *Eunapius*, on Waters, in Greek; together with the Fragments of *Galen*, *Rufus*, *Diocles*, and *Athenæus*, on the same Subject, with a Latin Version of them separately subjoined, was published at *Rome*, *An.* 1543. Quarto, by the Care of *Aug. Riccius*, a Physician of *Luca*. In the Catalogue of the *Bibliotheca Bigotiana*, are mentioned some of *Oribasius's* Medicinal Collections, printed in Greek, at *Paris*, 1556. in Octavo, which Book I never yet had the Fortune to see. *Antonius Verderius*, in his *Bibliotheca Gallica*, says, that he saw a French Manuscript Version of *Oribasius's* Works, by one *Adam de la Vallée*. The two Books of Chirurgical Bandages and Machines, from *Heracles*, or *Heraclides Ephesus*, *Soranus*, and *Heliodorus*, are also extant in Latin, translated by *Vetus Vadius*, in *Gesner's* Collection of Chirurgical Treatises, published at *Zurich*, 1555. in Folio. The *Synopsis Medica*, to his Son *Eustathius*, in nine Books, translated by *Rasarius*, was printed at *Venice*, 1555. Octavo; and all that remains extant of the seventy Books of his *Synopsis*, translated, also, by *Rasarius*, printed at *Paris*, 1555. Octavo. The Commentaries on the Aphorisms of *Hippocrates*, printed first in Latin, by *J. Guinter Audernac*, at *Paris*, 1553. Octavo, for *Simon Colineus*, were reprinted at *Basil*, 1535. at *Venice*, 1553. and at *Padua*, 1658. Octavo. It is easier to say, they were not written by *Oribasius*, than to assign their true Author; but they seem to be composed in Latin, and by some Christian. The Fragment of *Oribasius*, concerning Diet proper for all Seasons of the Year, was published in Latin, with *Plinius Valerianus*, by *Albanus Torinus*, at *Basil*, 1528. Folio. *Oribasius of Simples*, with four Books of the *Euporista* of *Octavius Horatianus*; the Physics of *Hilaeus*; the Regimen of *Theodorus* the Naturalist; and *Æsculapius* of the Causes, Description, and Cure of Diseases, were printed at *Strasburg*, 1533, and 1544. Folio. Extracts from the Works of *Oribasius*, on Waters and Baths, translated by *Aug. Gadaianus*, of *Modena*, were printed in a Venetian Work, which treated of Baths, *An.* 1553. Folio. *Fabricii Bibliotheca Græca.*

ORICHALCUM. The same as AURICHALCUM.

ORICIA. The Name of a sort of Turpentine-tree, so call'd from *Oricus*, a City of *Epirus*, near which it grows.

ORICULARIS. The same as AURICULARIS, or AURICULARIUS.

ORIGANITES. Wine impregnated with *Origanum*. *Dioscorides*, L. 5. C. 61.

ORIGANO COGNATA. A Name for the *Majorana*; *rotundifolia*, *scutellata*, *exotica*.

ORIGANUM.

The Characters are;

The Calyx is long, simple, tubulous, and closely seated among foliaceous Scales; in this is situated the Flower, having an erect, roundish, bifid Galea, or Crest, and a Beard divided into three Parts, the middle one being hollow, like a Spoon. The Flowers are collected into squamous Spikes, resembling those of the *Muscari*; and sometimes form a sort of Umbella, shooting forth, one on each Side of the Scales.

*Boerhaave* mentions eleven Species of *Origanum*; which are,

1. *Origanum*; sylvestre; humile. C. B. P. 223. Prodr. 109.
2. *Origanum*; sylvestre; humile; floribus candidioribus.
3. *Origanum*; humile; latifolium; glabrum. T. 199.
4. *Origanum*; sylvestre; Cumula Babula Plum. C. B. P. 223. Tourn. Inst. 199. Boerb. Ind. A. 179. *Origanum*. Offic. *Origanum vulgare spontaneum*. J. B. 3. 236. Raii Hist. 1. 539. Synop. 3. 236. *Origanum Anglicum*. Gen. 541. Emac. 666. *Majorana sylvestris*. Park. Theat. 12. WILD MARJORAM.

This *Origanum*, or wild Marjoram, is a foot, or more, high, having many hairy, brown, brittle Stalks, with two broad, round-pointed Leaves, bigger than Marjoram, set at a Joint on very short Foot-stalks, and of a brownish green Colour. The Flowers grow on the Tops of the Stalks, being small, labiated, and galeated, of a purple Colour, among long Heads, composed of a great Number of green Scales. The Roots are woody and fibrous. It grows in Hedges and Thickets, and flowers in July. The Tops and Leaves are used.

This *Origanum*, though not so strong as the *Origanum Creticum*, yet is very good for Obstructions of the Breath, Liver, and

Womb; helps the Jaundice, Shortness of Breath, and Stoppage of the Menfes; comforts the Head and Nerves. The distilled Oil helps the Tooth-ach, being put upon Lint into the aching Tooth. *Miller's Bot. Off.*

The wild Marjoram is acrid, aromatic, deterfive, and gives a very faint Tincture of red to the blue Paper; which makes us conjecture, that this Plant is filled with a volatile, aromatic, and oily Salt; not entirely destitute of Acid; whereas, in the artificial volatile Salt, the Acid of the Sal Ammoniac has been detain'd by the Salt of Tartar. Besides, the wild Marjoram contains abundance of terrestrial Parts. It is diuretic, diaphoretic, good to make one spit, and provoke the Terms. A Tea of it may be used in an Asthma, violent Coughs, Indigestion, and Pleurisy. It is used in the Washings for the Feet, and Semicupiums for the Vapours, Green-sickness, and Palsy. Take wild Marjoram, dried at the Fire, and wrap it warm in a Linen Cloth, and cover the Head well with it, for a Rheum and Rheumatism in the Neck, commonly call'd *Torticolis*. *Martyn's Tournefort.*

It is opening, absterfive, and astringent; and principally used in Obstructions of the Lungs, Liver, and Womb: Whence it is of Service in a Cough, Asthma, and Jaundice. It increases Milk, and expels ichorous Excrements by Sweat, being taken before Bathing. Outwardly, it is of frequent Use in Baths for the Head and Uterus, and for the whole Body under the Itch. *Raii H. P. p. 539.*

5. *Origanum*; sylvestre; album. C. B. P. 223. M. H. 3. 359.
6. *Origanum*; sylvestre; foliis variegatis, argenteis. Flor. 2. 78.
7. *Origanum*; sylvestre; foliis variegatis, aureis. Flor. 2. 79.
8. *Origanum*; Creticum. Offic. Ger. 541. Emac. 666. *Raii Hist.* 1. 540. J. B. 3. 238. C. B. P. 223. Boerb. Ind. A. 179. *Origanum sylvestre sive vulgare*. Park. Theat. 15. ORIGANY OF CRETE.

The *Origanum*, whose Tops are found in the Druggists Shops, grows taller than common sweet Marjoram, having longer and whiter Leaves, and larger and longer scaly Heads, white and hoary also, among which grow small white Flowers, like those of sweet Marjoram; of a most pleasant, strong, aromatic Scent. It grows in the Island of *Candia*, or *Crete*, and other Parts of *Greece*; and flowers in June.

This is what ought to be used, when the *Flores Origanæ* are, at any time, order'd to be put in a Composition.

This *Origanum* is heating and warming, and good for Diseases of the Lungs; to open Obstructions of the Womb, and bring down the Menfes, and to heal all kinds of venomous Bites. *Miller's Bot. Off.*

9. *Origanum*; Creticum; flore purpureo.
10. *Origanum*; Orientale; folio Brunellæ glauco; flore albo; Vaill.
11. *Origanum*; Diſtamni Cretici facie; folio crasso, nunc villoſo, nunc glabro. T. C. 13. T. Voy. 1. 240. Boerb. Ind. alt. Plant.

There is no Plant more celebrated by *Hippocrates*, than *Origanum*; he recommends it in Diseases which require Heating, Dissolving, and Stimulating: Whence it is of Use in Exulcerations of the Lungs, being boil'd in Wine, and then sweeten'd with Honey, and so sup'd hot. Thus prepared, it is a very good Medicine to expectorate Phlegm; but, however, is not to be exhibited, where an Hemoptoe is to be fear'd. It is, also, adapted to Diseases of the Kidneys; for it is aperient, dissolvent, and balsamic. This Herb is more heating than the *Diſtammus*, but not of so subtle Parts; it is of excellent Service in hypochondriacal Disorders, and Tertians, and where languishing Nature requires Relief by inciding. The Leaves boil'd in Water, and sweeten'd with Honey, are proper for old Persons in a great Cough, being relaxing and stimulative. The Herb is heating and penetrating; the Juice thereof, sweeten'd with Honey, is good for Impostumes of the Lungs, the Asthma, and Jaundice. *Origanum* provokes Sweat, and is proper in soporous, hysteric, and catarrhus Disorders; and increases Milk. The Preparations from this Plant are, a distill'd Water, a Spirit, and an Oil. The Seed of *Origanum* is very hot, like Pepper, and of Service in putrid Fistulas; and the Oil, prepared of the Flowers, is good against the Scurvy and Colic. A Tea of the Leaves is effectual in the Asthma, a violent Cough, and Indigestion; and, in Baths, the Leaves are used for the hysteric Passion, Chlorosis, and Palsy. *Hist. Plant. adscript. Boerhaav.*

*Origanum* is, also, a Name for the *Diſtammus*, *Creticum*; and for the *Diſtammus*, *montis Sypli*; *Origanæ foliis*.

*Origanum Smyrnaeum*. A Name for the *Majorana*; *Cretica*, *Origanæ foliis*; villosa; Satureiæ odore; corymbis majoribus.

Besides the foregoing Species of *Origanum*, *Dale* mentions the following.

- Origanum Heracleoticum*. Offic. Ger. 541. Emac. 666. *Raii Hist.* 1. 539. *Origanum Heracleoticum verius*. Park. Theat. 15. *Origanum Heracleoticum*. *Matthioli*, aliis furto *Creticum*. J. B. 3. 237. *Origanum Heracleoticum*, *Cumula gallinacea* Plum. C. B. P. 223. Tourn. Inst. 199. BASTARD MARJORAM.

It is cultivated in Gardens, and flowers in the Summer. The Herb is in Use, and is proper, as *Dioscorides* says, for Bites of Serpents, and exhibited in Ruptures, Convulsions, and Dropsies.



**ORIONIUS.** Urinous; an Epithet for the Spirit, and Salt of Urine.

**ORIZEUM.** Gold. *Orizæus Color* is a yellow Colour in the Eyes, or Urine.

**ORLEANA.** See **ACHIOTL.**

**ORMINUM.** The same as **HORMINUM.**

**ORMS.** A Hen. *Rulandus.*

**ORNITHIÆ,** ὀρνίθια. In *Hippocrates, Epidem. L. 7.* these are the Vernal Winds, which bring the Swallows, and other Birds of Passage. *Pliny* says, these Winds blow from the West; and that, by some, the *Etesia* are thus called. Others are of Opinion, that the Winds here meant blow from the North, or North-east, as the *Etesia* do.

**ORNITHOGALUM.**

The Characters are;

The Pedicle, proceeding from the Stalk, ends in a long thin Membrane. The Flower is naked, hexapetalous; the Petals expanding into a Circle; and bears in its Centre an erect, floral, and hexapetalous Tube; each Petal having a Stamen, or Chive, growing to its upper Part, on the Inside; the Flower, with its Tube and Ovary, closely embraces the Ovary, and its Tube. The Ovary is furnish'd with a long Tube, having a spherical Apex, and becomes a roundish Fruit, full of roundish Seeds; the Root is bulbous, or tuberous.

*Boerhaave* mentions eleven Species of *Ornithogalum*, none of which have any Uses ascribed to them, except the seventh, which is thus distinguish'd.

*Ornithogalum*; umbellatum; medium; angustifolium. *C. B. P. 70. Tourn. Inst. 378. Boerb. Ind. A. 2. 142. Ornithogalare. Offic. Ger. 132. Emac. 161. Ornithogalum vulgare & verius. J. B. 2. 630. Raii Hist. 2. 1153. Synop. 3. 372. STAR OF BETHLEHEM.*

It is cultivated in Gardens, and flowers in *May*, and the Root and Seed are in Use; the first of which, as *Dioscorides* says, is eaten either raw or boil'd, and the other is baked in Bread.

*Ornithogalo-affinis.* A Name for the *Phalangium*; *Africanum*; *foliis Tricoidis*; *floribus spicatis, aureis.*

*Ornithogalum maritimum.* A Name for the *Scilla, vulgaris*; *radice rubra.*

**ORNITHOGLOSSUM.** Is a Name given for the Seeds of the common Ash-tree. See **FRAXINUS.**

**ORNITHOPODIO-AFFINIS.** A Name for the *Ferrum equinum*; *Germanicum*; *siliquis in summitate.*

**ORNITHOPODIUM.**

The Characters are;

The Leaves are conjugated, in a Series of several Pairs, and end in an odd one. The Pod is hooked, jointed, and undulated, or waved; containing, within each Joint, one round Seed. The Pods grow many together, from the same Origin, in such a manner, as to resemble a Bird's Foot.

*Boerhaave* mentions six Species of *Ornithopodium*; which are,

1. *Ornithopodium*; majus. *Ger. 1061. Emac. 1241. Tourn. Inst. 400. Boerb. Ind. A. 2. 50. C. B. P. 350. Ornithopodium, Offic. Ornithopodium radice nodosa. Park. Theat. 1093. Raii Hist. 931. Synop. 3. 326. Ornithopodium tuberosum Dalechampii, J. B. 2. 351. BIRDS-FOOT.*

It grows in sandy and gravelly Places, and flowers in Summer. The Herb, which is of Use in Medicine, breaks and expels the Stone in the Kidneys and Bladder, and is effectual in an Hernia.

2. *Ornithopodium*; minus. *C. B. P. 350.* This agrees in Virtues with the former.

3. *Ornithopodium*; radice tuberculis nodosa. *C. B. P. 350.*

4. *Ornithopodium*; *Portulacæ folio. Tourn. Inst. 400. Boerb. Ind. A. 2. 50. Scorpioides. Offic. Scorpioides Matthioli. Ger. Emac. 337. Raii Hist. 1. 931. Scorpioides Matthioli sive Portulacæ folio. Park. Theat. 1117. Scorpioides Portulacæ folio. C. B. P. 287. Telephium Dioscoridis seu Scorpioides ob siliquarum similitudinem. Ejuld. Telephium Scorpioides. J. B. 2. 889. SCORPIONWORT.*

It is cultivated in our Gardens, and flowers in Summer. The Herb is used, and is, according to *Galen*, of an heating and drying Quality; and, as *Dioscorides* says, is a present Remedy against the Sting of the Scorpion, being apply'd to the Part.

5. *Ornithopodium*; minimum; *διέξαστον* vel *ολιγοκέραστον. M. H. 2. 125.*

6. *Ornithopodium*; *Scorpioides*; *siliquâ compressâ. T. 400. Ornithopodio affinis, hirsuta, Scorpioides. C. B. P. 350. Scorpioides, leguminosa. J. B. 2. 349. Boerb. Ind. alt. Plant.*

**ORNUS.** A Name for the *Sorbus*; *Aucuparia.*

**OROBANCHE.**

The Characters are;

The Root is squamous, and the Plant appears as if it were bare of Leaves. The End of the Pedicle opens into a multilid Calyx; the Flower is monopetalous, anomalous, bilabiated, (the *Galen* being hollow, and the Beard trifid) collected into Spikes, and embracing an oblong Ovary, furnished with a long Tube, uncapfular, bivalve, opening, when ripe, into two Valves, and pregnant with very minute Seeds.

*Boerhaave* mentions four Species of *Orobanche*; which are,

1. *Orobanche*; major; *garyophyllum olens. C. B. P. 87. Raii Synop. 3. 288. Tourn. Inst. 175. Boerb. Ind. A. 240. Orobanche.*

*Offic. Orobanche flore majore. J. B. 2. 780. Orobanche, sive Rapum Genistæ. Ger. 1130. Emac. 1311. Park. Theat. 1362. BROOM-RAPE.*

It frequently grows to the Roots of *Genista*, or *Broom*; whence it is called *Rapum Genistæ*, or *Broom-rape*; it is found also among Corn. The Herb preserved, or its Syrup, is of excellent Use in splenetic and hypochondriac Disorders; and an Ointment prepared of the same, with Swines Fat, is good for hard and scirrhus Tumors.

It grows in gravelly and dry Places, and flowers in *June* and *July*. The Herb, dry'd and pulverized, is a present Remedy for the Pains of the Colic. *Dale.*

2. *Orobanche*; *ramosa*; *floribus purpurascens. C. B. P. 88. M. H. 3. 502. Orobanche minor, purpureis floribus, sive ramosa. J. B. 2. 782. Orobanche. III. πολύκλαδον. Clus. H. 271.*

3. *Orobanche*; *ramosa*; *floribus cœruleis. C. B. P. 88.*

4. *Orobanche*; *ramosa*; *floribus subalbidis. C. B. P. 88. Ind. alt. Plant.*

**OROBION,** ὀρόβιον, in *Hippocrates*, according to *Foesius*, is the Meal of the *Orobis*.

**OROBOEIDES HYPOSTASIS,** ὀροβοειδὴς ὑπόστασις. A Sediment in the Urine, resembling the Meal of the *Orobis*; that is, of a dark-red Colour, such as is made in a Jaundice.

**OROBO.** Metallic Glafs.

**OROBUS.**

The Characters are;

It has a smooth round Pod, full of oval Seeds, and two conjugated Leaves growing to a Rib, which ends in a Point.

*Boerhaave* mentions nine Species of the *Orobis*; which are,

1. *Orobis*; *purpureus*; *sylvaticus*; *vernus. C. B. P. 351. Galega nemorosa, verna. J. B. 2. 343.*

2. *Orobis*; *sylvaticus foliis Viciæ. C. B. P. 352. Astragaloides. Dod. p. 551.*

3. *Orobis*; *Pyrenaicus*; *foliis nervosis*; *latifolius. Sch. Bot. Par. T.*

4. *Orobis*; *sylvaticus*; *foliis oblongis, glabris. Tourn. Inst. 343. Boerb. Ind. A. 2. 46. Raii Synop. 3. 324. Orobis. Offic. Astragalus sylvaticus. Ger. Emac. 1237. Raii Hist. 1. 916. Astragalus sylvaticus foliis oblongis, glabris. C. B. P. 351. Astragaloides seu Astragalus sylvaticus Astragalo magno Fuchsi, seu Chamabalano leguminosa affinis planta. J. B. 2. 334. WOOD-PEASE, or HEATH-PEASE.*

The Plant grows in woody and bushy Places; flowers in *April*, and the Seed is ripe in *May*. The Tubera of the Root taste much like Liquorice, and the *Scotish* Highlanders make use of them in the same Disorders of the Thorax, for which Liquorice is proper. They call the Plant *Karemyle*, and use those Tubera, temper'd with Water, to enable them to support Hunger and Thirst the longer; for which Purpose, they find them very serviceable; for, by their sweet and viscid Substance, they correct and mitigate, and even fix and restrain, the acid and acrimonious Humours in the Stomach; and, by that means, are a Remedy against Hunger and Thirst. If this Plant, therefore, be not the same with what *Theophrastus* calls *Scythica*, (which is generally thought, by the Learned, to be Liquorice) it is certainly very much like it, being leguminous, siliquous, and of the same Qualities. And it seems very probable, that the Tubera of this Plant were the Food with which the *Britons* sustain'd themselves for some Days, when they were pressed by the Enemy; as it is related by *Dion*, in the Life of the Emperor *Severus*. For this Plant, says *Dr. Sibbald*, in his Introduction to the Natural History of *Scotland*, has the Virtues of Liquorice; and its Tubera, by our Highlanders, who, to this very Day, retain the Manners, and Way of living, of the ancient *Scots*, are still applied to the same Uses; but, as for Liquorice, I know not, that it grows any-where in the whole Island, without Cultivation. *Raii H. P. 916.*

5. *Orobis*; *angustifolius*; *Italicus*; *flore vario. T. 393.*

6. *Orobis*; *latifolius*; *repens*; *siliquâ parvâ. Ind. 162. Galega nemorensi similis*; *multiflora*; *flore purpureo. J. B. 2. 345.*

7. *Orobis*; *latifolius*; *repens*; *flore cœruleo*; *foliis & siliquis hirsutis. Sherard. Ind. 162.*

8. *Orobis*; *sylvestris*; *vernus*; *flore albo. Thalii.*

9. *Orobis*; *Creticus*; *folio Viciæ. Boerb. Ind. alt. Plant.*

*Orobis sativus.* A Name for the *Ervum*; *verum.*

*Hippocrates* recommends this Plant in the Pleurisy, Peripneumony, and nephritic Disorders; for which Purposes, let the Seeds be roasted and bruised, and then have hot Water poured upon them; after this, it must stand a Night, and then be kept hot, with an Addition of Oxy-mel. This Liquor is said to be lenitive, and of a penetrating Virtue, and is the same as our Coffee; but, whether this be the *Orobis* of the Antients, is a Question. The Seed of this Plant, on account of its farinaceous and mucilaginous Quality, answers to Fenugreek, in mollifying and maturing Abscesses; and, by virtue of its diuretic Salt, which it contains in common with other leguminous Plants, it is of Service in provoking Urine, and expelling Gravel. *Hist. Plant. adscript. Boerhaave*

**OROGAMO.** Gold. *Rulandus.*

**OROS,** ὄρος. The entire superior Part of the Foot is sometimes thus called.

**ORRHA.**



# ORV

**ORRHAGOGON**, ὀρραγωγόν, from ὀρρός, *Serum*, and ἄγω, to bring away. An Epithet for Purges which evacuate *Serum*.

**ORRHOPISSA**. The serous, or most fluid Part of Tar.

**ORRHOPYGION**, ὀρροπύγιον. The Line, or Seam, which runs from the *Penis*, along the Middle of the *Scrotum*, to the *Anus*. It, also, signifies the Extremity of the Spine. *Gorræus*.

**ORRHOS**, ὀρρός. The Whey of Milk, or *Serum* of the Blood; ὀρρός πλάσις is the same as **ORRHOPISSA**. But

**ORRHOS**, ὀρρός, is the same as **ORRHOPYGION**.

**ORTHOCOLON**, ὀρθόκωλον, from ὀρθός, strait; and κῶλον, a Limb. Such a Species of stiff Joint, as is form'd when it cannot be bended, but remains inflexible and strait.

**ORTHODORON**, ὀρθόδωρον, a Greek Measure of Length, equal to the Space between the upper Part of the Hand, next the *Carpus*, and the Extremity of the middle Finger, containing eleven Dactyls, or Digits. *Arbutnot*.

**ORTHOPNOEA**. See **DYSPNOEA**.

**ORTHOSTADEN**, ὀρθοστάδην. An Adverb, frequently used by *Hippocrates*, importing that a Person is up, and about his Affairs, and not confined to his Bed by Sickness.

**ORVALA**. A Name for several Species of **SCLAREA**.

**ORUCORIA**. The Name of a siliquiferous *Indian* Plant, the Juice of the Fruit of which is said to consolidate Wounds.

**ORVIETANUM**. The Name of a celebrated Antidote, thus call'd, according to *Lemery*, from *Orvieto*, a City of *Italy*, where it was first used; but, according to others, from *Hieronymus Ferrantes Orvietanus*, a celebrated Mountebank, who invented it.

The *Antidotum Orvietanum* is thus prepared.

Take of old Theriaca, and dry'd Vipers, with their Hearts and Livers, each four Ounces; of the Roots of Vipers-grass, Carline-thistle, Masterwort, Angelica, Bistort, the smaller Birthwort, Contrayerva, white Dittany, Galangals, Gentian, Costus, and the true Acorus, of the Seeds of *Macedonian* Parsley, of the Leaves of Sage, Rosemary, Goats-rue, Carduus Benedictus, and Dittany of *Crete*, of Bay and Juniper-berries, each one Ounce; of Cinnamon, Cloves, and Mace, each half an Ounce; and of the best Honey despumated, eight Pounds: Make into an Antidote.

Reduce all the Ingredients into a common Powder; despumate the Honey, and boil it to the Consistence of a thick Syrup. Suffer it to become half-cold, and then, by means of a Spatula, carefully mix with it the Theriaca, and the Powder, in order to make an Electuary, to be kept, for Use, in a close-stopt Vessel.

This Electuary, or Antidote, is highly esteem'd, as good against the Plague, the Small-pox, and the Bites of poisonous Animals. It, also, corroborates the Brain, the Heart, and the Stomach. The Dose is from one Scruple, to a Dram and an half.

As the Goodness of the Orvietanum is principally estimated by its Smell, the following Preparation of it will have the due Smell, Strength, and Efficacy.

Take of Angelica-root, two Pounds; of dried Vipers, with their Hearts and Livers, of the Roots of Contrayerva, Gentian, the true Acorus, Costus, Galangals, Carline-thistle, Ginger, Spignel, white Dittany, long Birthwort, and Masterwort, each two Ounces; of the Leaves of Sage, Rosemary, Wormwood, Calamint, Savory, Marjoram, Scordium, Dittany of *Crete*, Hyssop, Thyme, and Poly-mountain, each two Drams; of the Flowers of *Arabian* Steechas and Lavender, of the exterior Rinds of Citrons and Oranges, Mace, Cinnamon, Bay and Juniper-berries; of the Anthelmintic Seeds, the Seeds of Carduus Benedictus, Citrons, the lesser Cardamoms, *Macedonian* Parsley, Caraway, together with Sal Ammoniac, and the Salt of Tartar, each one Ounce; of old Theriaca, one Pound; of *Peruvian* Balsam, two Ounces; of the Oil of Rosemary, one Ounce and an half; and of despumated Honey, twenty-three Pounds. Mix up into an Antidote, or Electuary; the Dose of which is from one to four Scruples.

The *Electuarium Orvietanum* of *Frederic Hoffman* is thus prepared.

Take of the Roots of Swallow-wort, Zedoary, the Carline-thistle, Angelica, Butter-bur, Valerian, white Dittany, Elecampane, and Celandine, each three Ounces; of the Leaves of Dittany of *Crete*, Scordium, and Rue, each two Handfuls; of the Powder of Vipers, two Ounces; of oriental Saffron, one Ounce and six Drams; of Galbanum, one Ounce and an half; of the best Myrrh, Sulphur, and Seal'd Earth, each one Ounce; of the volatile Salt of Vipers, six Drams; of Cinnamon and Cloves, each half an Ounce; of corrected Opium, or the Laudanum Opiatum, three Drams; of the Oils of Amber and Citron, each one Dram and an half; and of the Honey of Juniper, ten Pounds: Mix all together into an Electuary, and allow the Prepa-

# ORY

ration to stand in Fermentation, for some Months, in a close Vessel.

Reduce the Roots, the Leaves, the Cinnamon, and the Cloves, to a Powder together. Then reduce the Saffron to a Powder by itself, after having dried it slowly between two Papers. The Seal'd Earth and Sulphur are to be reduced, also, to a Powder by themselves. The Galbanum, also, which ought to consist of the purest Tears, is to be reduced to a Powder with the Myrrh; and all these Powders are to be mixed with that of the Vipers.

Then prepare, in the ordinary Manner, ten Pints of the Extract of Juniper, in the Consistence of Honey, or a thick Syrup. Dissolve in this Extract, whilst as yet warm, the Laudanum, and, the Powders; and when the Preparation is entirely cold, mix with it, exactly, the Salt of Vipers, after having dissolved it in two Ounces of *Spanish* Wine. At the same time, also, mix with it the Essences, or distil'd Oils, of Amber and Citron-peel, for an Electuary, or Opiate; to be kept for Use in a close-stopt Vessel; allowing it to stand in Fermentation for some Months, before 'tis used.

This is possess'd of the same Virtues with the former, and is to be exhibited in the same Dose.

This Orvietanum, says *Lemery*, is one of the best to be found any-where. However, he is of Opinion, that some of the superfluous Ingredients should be retrench'd; such as the Seal'd Earth, and the Celandine-root; and thinks, that the small Quantity of Opium is not sufficient to render the Preparation somniferous. *Lemery Pharmacopée*.

**ORYCALUS**. The Name of a cetaceous Fish, mention'd by *Oribasius*, *Collect. Medic. L. 2. C. 58.* where he says, it is a large *Pelamis*, Tunny.

**ORYX**. A Sort of wild Goat, the Horns of which are said to be sudorific, and good against the Bites of venomous Animals, taken either in Powder, or by way of Decoction. It is said to be found, principally, in the Woods of *Getulia*.

**ORYZA**.

The Characters are;

It hath its Grains disposed into a Panicle, which are almost of an oval Figure, and are cover'd with a thick Husk, somewhat like Barley.

*Boerhaave* mentions but one Sort of *Oryza*; which is,

*Oryza. Offic. Ger. 72. Emac. 79. Park. Theat. 1136. Raii Hist. 2. 1246. C. B. P. 24. Theat. 479. J. B. 2. 451. Tournef. Inst. 514. Boerb. Ind. A. 2. 160. RICE.*

This Grain, which is so much in Esteem in the Eastern Countries, that it is the principal Corn they use, grows to be three or four Feet high, with Leaves broader than those of Wheat; bearing loose Spikes, much divided, and composed of oblong flatish Grains; having each a Beard, or Awn, two or three Inches long, forked at the Top, and frequently curled at Bottom. They are of a white Colour, inclosed in a brown Husk or Skin. Rice is sown in *Italy*, *Turky*, and the *East-Indies*; and we have as large and good from *Carolina*, as from any Part of the World.

It is more used for Food than Physic; being a wholesome strengthening Grain, restraining, and good for those who have a Slipperiness in their Bowels, or are inclinable to a Flux or Looseness. *Miller's Bot. Off.*

Rice is the principal Food in all the Countries of the *East-Indies*, whence it was first imported into *Greece* and *Italy*. It thrives very well, also, and is a profitable Grain, in *Egypt*, some Parts of *Syria*, and the *Canary Islands*; as, also, in *Spain*, and in *Italy*, where, says *Ray*, we have observed it to grow in the marshy Places of the Territory of *Ferrara*.

It delights in a moist Soil, and grows in the very Waters. In the Island of *Zeylan*, they have Reservoirs of Water, for watering their Fields of Rice; in which Country, they say, the soil is so moisten'd and soften'd with perpetual Inundations, that the Reapers, in the Time of the Rice-harvest, stand up to the Knees in Water. It ripens with the Heat of the Summer, and its latest Harvest is about the Autumnal Equinox; so that our Northern Regions, tho' redundant in Moisture, are too cold for bringing this Grain to Maturity.

Rice is very much used among Aliments, by all the Eastern Nations, and especially the *Indians*. It is more easily digested, and more grateful to the Palate, when boil'd in Cow's Milk, Almond-cream, or pinguous Broths, prepared of Flesh. It is commodiously mix'd with Aliments, intended for those who labour under a Dysentery, the *Celiac* Passion, or a Diarrhoea; especially when 'tis previously toasted, and boil'd in Milk, in which ignited Stones have been extinguish'd. *Matth.*

Rice, among the *Indians*, is made into Bread in various Manners, described by *Caspar Bauhine*, in his *Theat. Bot. Lib. 1. Sect. 4. Cap. 29.* The Inhabitants, also, of many Parts of the *Indies* prepare a kind of Drink of Rice, as the same Author informs us, in the Part last quoted. The *Turks* prepare *Panadas*, and several other Dishes, of it. The various Methods of preparing Rice for Aliments, in *Europe*, where the Bread is made of Wheat, are to be found in *Caspar Bauhine*, in the Part last quoted.



'Tis a common Opinion, that Rice renders those who eat of it, fat; for which Reason, in some Places, lean and slender Women frequently use it with Milk, and a large Quantity of Sugar. But this Notion is contrary to the Opinion of the ancient Physicians, who reckoned it not only among the *διγύτιστα*, or such Things as only nourish little, but, also, among the *δυσπεπτα*, or such Substances as are of difficult Digestion. But, says Mr. Ray, I am of the same Opinion with the common People, nor dare I condemn the Aliment used for so many Ages, by so many Nations: That it renders the Patient moderately costive, I grant; for which Reason I don't deny but it is beneficial in the hepatic Flux, a Discharge of bloody Urine, and a Cough, when used in Conjunction with other astringent Substances. The Meal of Rice is, also, mixed with repellent Cataplasms, and such as are intended to remove beginning Inflammations of the Breasts, with an Addition of the Flowers of Chamomile and Roses. *Helmont*, in a Spitting of Blood, recommends Rice boiled in Water, or chalybeate Milk. *Dol. Lib. 3. Cap. 8. Sect. 16. D. Soame.*

A thin Decoction of Rice with Water is, among the *Indians*, very frequently used as a Vehicle for many Medicines.

Some call the vinous Liquor extracted from Rice, *Arrack*. *Raii Hist. Plant.*

OS. A Bone.

The Bones are subject to the like Disorders with those incident to the softer Parts of the human Body.

It is certain, that a Knowledge of the several Diseases incident to the Bones is a Circumstance of the highest Importance, not only for understanding, but, also, for curing, a Lues Venerea, the Rickets, and the Scurvy.

That the Bones, which by *Galen*, in his Book *de Ossibus*, in *Promio Charter. Tom. 4.* are justly called the most hard, dry, and terrestrial Parts of Animals, and subservient to the Support of the others, should be subjected to the same Disorders with the softer Parts, may at first possibly seem surprising; but that they are so, will sufficiently appear from the following Considerations.

All the Bones in the human Body were once soft; for the whole Rudiment of the Embryo, some Days after Conception, unless sustained by the equable Pressure of the circumambient Fluid, is dissolved into a Species of Mucus, without either Form or Shape; as is obvious from the Observations of *Malpighi*, in the Generation of a Chicken in the Egg. In the Fœtus, also, when born, there are many Membranes, and soft Parts, which are afterwards converted into the most solid Bones: This is sufficiently obvious in the Bones of the Head, which, for a long time, retain the Nature of a Membrane, in that Part of the Vertex, called the *Fontanel*, which in some continues membranous till the eighth Year of their Age: And, which is still more surprising, the Teeth, which afterwards become incredibly hard, when latent in the Jaws of new-born Infants, resemble a soft Mucus, lubricated by an incredible Number of small Vessels. In the original State, therefore, of the Bones, that is, when they are soft, and not indurated, they may be subject to the same Disorders with those incident to the softer Parts: And even after they have acquired that Degree of Solidity, which renders them subservient to the various Purposes of the human Body, and are not entirely hard and dry as in Skeletons, but are, in some measure, succulent, they are still lubricated and moisten'd by a large Number of Vessels, which convey Fluids not only through the Substance of the Bones, but, also, through their Cavities: Hence, in consequence of these containing Vessels, and the Fluids contained in them, the same Disorders may happen to the Bones with those incident to the softer Parts. Hence it is, also, obvious, that the Bones are most obnoxious to such Diseases, when they most approach to the Nature of the softer Parts, that is, in young Persons, which is, also, confirmed by daily Experience: Hence the Spina Ventosa is almost only found in young Patients. And in decrepit Old-age, the Bones, when dry and sapless, are broken by the slightest Cause; but such Patients are generally little subject to the other Disorders of the Bones.

Besides, it is certain from undoubted Facts, that, by means of Diseases, the Bones have been so changed, as, losing their Solidity, to acquire the Softness of Flesh: An Instance of which we have in *Petit's Traité des Maladies des Os, Lib. 1. Cap. 4.* where that justly celebrated Author informs us, that he has often observed a similar Degeneration of the Bones into a soft and fleshy Substance. From all which Circumstances it is sufficiently obvious, that the Diseases incident to the softer Parts may, also, happen in the Bones; which is still more effectually proved from anatomical Observations, with respect to the Fabric and Structure of the Bones.

For the Interstices of the Bones are lined with a slender Membrane furnished with the same kind of Vessels, and continually moisten'd by the same Liquors, as moisten the softer Parts.

The celebrated *Clopton Havers*, in *Osteol. Nov.* and *Dominicus Gagliardus*, in *Anatom. Ossium*, have demonstrated, that the Bones

of the human Body consist of Laminæ mutually applied to each other, though in such a manner that they are not always closely united, but leave between them Interstices, through which a large Number of Vessels run. But this appears most conspicuously in the larger hollow Bones, such as those of the Thigh, Humerus, and Tibia; for in that Part of the Bones which is equally distant from both their Extremities, the Laminæ appear closely united, and the Compages of the Bone is there found to be most firm; but, as the Laminæ recede from the Middle to either Extremity of the Bones, the internal Laminæ begin gradually to recede from their incumbent Laminæ, and leave considerable Interstices. The nearer these Laminæ approach to the Extremities of the Bones, the greater Number of them recede from each other, till at last there is only left, in the Extremities of the Bones, a thin bony Crust, which covers and defends that surprising cellular Substance, observable about the Extremities of the Bones; for as the Laminæ mutually recede from each other through all the Bone, its Cavity is gradually lessen'd, and at last entirely filled up at the Extremities with a bony and cellular Substance; for, between the receding Laminæ of the Bones, small bony Ramifications every-where arise, unite the separate Laminæ, retain them in their Situation, and divide the Interstices between them into smaller Cellule. But in the smaller Bones, which have not large Cavities, such as the Phalanges of the Fingers, this Union and mutual Concretion of the Laminæ does not appear in the middle Space of the Bones; but many of the interior Laminæ are, thro' their whole Length, distant from the incumbent Laminæ; and not only towards their Extremities, but, also, every-where, form bony Cellule, like those observed in the larger Bones: Hence appears the Reason why these Bones are far weaker than others, since the Strength of Bones depends upon the Union and Concretion of many bony Laminæ with each other. The like bony Laminæ, lying above each other, are observed to constitute the Cranium; and in some Craniums manifest Interstices are observable between them.

The Interstices left between these Laminæ, receding from each other, are lined with their proper Membranes, through which a large Number of Vessels are distributed: This was sufficiently evinced by the Injections made by *Ruyssch*, and may be palpably perceived in the larger Bones of newly killed Animals; so that it is no Wonder, that the Bones should be subjected to the same Misfortunes with the softer Parts, since they are furnished with the same kind of Vessels, and the same Fluids.

This Structure of the Bones, consisting of Laminæ mutually applied to each other, excellently corresponds to the Phenomena sometimes observable in Diseases. If, as is observed under the Article CAPUT, the Pericranium is wounded, and the Bone remains bare for a considerable time, its Colour is gradually changed, and at last a corrupted Scale is separated from the subjacent sound Bone. And, when small Perforations are made in the Bone affected, the live subjacent Vessels spring up through them, separate the corrupted from the sound Part, restore the lost Substance of the Bone, and form a new Periosteum, in the same manner as the Substance lost by means of a Wound is restored in the muscular Parts of the Body. Under the Article CAPUT it is, also, shewn, that, in order to this Separation, it is not necessary, that the Perforation should reach the Diploe; for, that there are Vessels there, nobody can doubt; but in slight Wounds shallow Perforations are sufficient, and the live Vessels spring up through them. Hence it is obvious, that between the Laminæ of the Cranium Vessels are distributed, which, when the corrupted Part of the Bone is removed, very soon rise through the Perforations. *Celsus*, in the second Chapter of his eighth Book, when treating of the Cure of Disorders of the Bones, speaks in the following manner, *It must first, says he, lay open the Ulcer, and render the Bone bare; and, if the Disorder of the Bone is broader than the Ulcer, an Incision is to be made in the Flesh, sufficient to lay the affected Part of the Bone bare: Then the actual Cautery is to be once or twice applied, or the Part is to be scraped, till a Discharge of some Blood is made, which is a Sign of a sound Bone; for the Part disorder'd must necessarily be dry.*

The greater the Interstices between the Laminæ of the Bones are, the more, in these particular Parts, the Bones approach to the Nature of the soft and muscular Parts.

For, as the Interstices between these Laminæ have slender Membranes furnished with Vessels, so the larger these Interstices are, the greater will the Number of Vessels be; and the Bone must, of course, in such a Part, approach very much to the Nature and Structure of the soft Parts.

For this Reason, such Parts of the Bones are most subject to the Disorders incident to the soft Parts.

This is sufficiently obvious from what has been said; for in these Interstices there are Vessels and Humours, as well as in the soft Parts; for which Reason a too great Weakness or Strength of these Vessels, and a spontaneous Degeneracy of the Humours they contain, may happen. The Motion, also, of the Humours through



through these Vessels, may be either too quick, or too faint and languid. In consequence of these Circumstances, there may be Obstructions, Solutions of Continuity, Inflammations, and all their Consequences, in the Bones, as well as in the soft and muscular Parts.

Of this Kind are the broader Parts of the Bones near the Joints; whereas they are more compact, and less vascular, in the Middle, or Part equidistant from their Extremities.

We have already observed, that the Laminæ which constitute the larger Bones, are, in that Part of the Bone which is equidistant from its Extremities, so closely united as to leave hardly any Interstices: Hence in such Parts the Solidity of the Bone is greatest, and none, or very few, and small Vessels are distributed between these Laminæ: But as the Laminæ gradually recede more and more from each other, in proportion as they approach to the Extremities of the Bones, and the Interstices are enlarged, so the Bones are enlarged about the Joints, but are at the same time weaker, and more easily injured, because there the external bony Crust, formed by the Union of the Laminæ, is thinnest. *Clopton Havers*, in his *Osteologia Nova*, tells us, that in the Middle of a Thigh-bone, before the Laminæ began to be separated, he observed them five times thicker than at the Top of the Bone. But, says *Van Swieten*, in a Thigh-bone curiously prepared, I observed the Laminæ in the middle Part of the Bone twenty times thicker than the thin bony Crust, with which the Head of that Bone, the Trochanter Major, and the inferior Part at the Articulation with the Tibia, are covered: Hence the Reason is obvious, why near the Joints the Bones are most generally subject to the Disorders incident to the soft and muscular Parts. Hence, also, it is that a more terrible Train of Symptoms attends Fractures happening in the large Parts of the Bones near the Joints, in consequence of the Injury done to the numerous Vessels, and the Effusion and Corruption of their contain'd Fluids. It is requisite the Bones should be more strong and firm in the Middle, than at the Extremities, because, whilst, for Instance, the whole Weight of the Body is supported by the Os Femoris, the greatest Force acts upon the Middle of the Bone, and at the same time there is here formed, in consequence of the close Union of the Laminæ, a Cavity for the Marrow, whilst, by such an Union, the Strength of the Bones is, also, increased; for it is demonstrable, from the Principles of Mechanics, that an hollow Cylinder is broken with greater Difficulty than a solid one, consisting of the same Quantity of Matter.

Hence arises the primary Distinction between the Diseases incident to the Bones.

For the sake of Distinctness, it is necessary to rank the Disorders of the Bones under certain Classes, according as the various Parts constituting their Fabric are affected; for the Effects of these Disorders are quite different, and require different Methods of Cure, according to the various Parts affected. Now the first Distinction of these Disorders, in the large articulated Bones, is taken from the Part affected, the Middle, for Instance, where they are most solid; or their Extremities, where they are indeed larger, but less firm, and of a more cellular Texture.

The Bones, besides the Vessels common to the softer Parts, have, also, in their larger Cellulæ, Vesicles full of a subtle medullary Oil, there secreted and accumulated for certain Purposes: These Vesicles, which about the Joints are pretty large, are about the Middle of the Bone gradually destroyed, and almost vanish into small Ducts, which contain a pinguious Substance.

Since, therefore, the larger Parts of the Bones, near the Joints, approach pretty much to the Structure of the soft Part, so the Disorders incident to the latter may happen in the former. Besides, another thing often gives Birth to the most terrible Disorders of the Bones; for the thin medullary Oil is lodged in their cellular Part, secreted from the arterial Blood, and collected in Vesicles, which not only communicate with each other, but, also, with the whole medullary System, in the Cavities of the larger Bones; and through the Pores of the Cartilages, with which the Extremities of the articulated Bones are covered, discharge their Contents into the Cavities of the Joints, in order to form, in Conjunction with the glutinous Humour of the Glands of these Parts, a kind of Ointment for rendering the Joints more moveable. Besides, these medullary Vesicles, lodged between the receding bony Laminæ, seem to distribute some Part of the medullary Oil to the bony Laminæ, in order to prevent the too easy Breaking of the Bones: For, as we shall afterwards shew, in these Parts, where the Laminæ are most closely united, the medullary Oil enters their Pores, and is distributed between the Laminæ, adjoining to each other, since in the middle, or most solid Part of the Bones, there is no Space or Room left for the medullary Vesicles. This medullary Oil, therefore, lodged in these Vesicles, seems to answer two Ends, which are, first, to

lubricate the Joints; and, secondly, to diffuse itself between the Laminæ of the Bones, in order to prevent their too great Dryness: Hence, when, either in consequence of decrepit Old-age, or Diseases, this medullary Oil becomes defective, the Joints crackle, and move with Difficulty; the Bones, also, when deprived of this Oil, are easily broken.

How great a Quantity of this medullary Oil is lodged in this cavernous Part of the Bones, is sufficiently obvious in the Bones of Beef, when boiled: For, after all the Marrow contained in the larger Cavities of these Bones is taken out, if their Extremities are split, or struck with a Mallet, a large Quantity of this medullary Oil is discharged. We shall hereafter consider the Structure of these Vesicles, which contain the medullary Oil; since they are similar to those which constitute the Marrow lodg'd in the middle Cavities of the larger Bones, only with this Difference, that, in the cavernous Parts of the Bones, few Vesicles, or perhaps only one, are lodged in the smaller Cavities; whereas the Marrow is a Congeries of many such Vesicles, contained in a common Membrane. Now, where there is a greater Distance between the receding Laminæ, it is sufficiently obvious, that a larger Number of Vesicles may be lodged there: But in the Parts where these Laminæ are contiguous, or, at least, very little distant from each other, there are no such Vesicles, but the thin medullary Oil is either distributed between the Laminæ, by means of small Ducts propagated from these Vesicles, or it enters by the Pores of the bony Laminæ, which we shall afterwards describe.

Hence arises another Class, or Order, of Diseases incident to the Bones.

Another Origin of Diseases in the Bones is, when the Vesicles containing the medullary Oil are affected; in consequence of which, a violent Corruption of that Oil happens, and many Disorders, which shall afterwards be enumerated, will be produced.

The Bones have an external Periosteum, which not only surrounds and covers their convex Part, but, also, conveys the arterial Vessels into their Cellulæ and Marrow, and receives an incredible Number of venous Vessels, both large and small.

*Clopton Havers*, in his *Osteologia Nova*, has demonstrated, that all the Bones of the human Body are covered with a fine Membrane, of an acute Sensation, and which consists of various Strata of Fibres, applied to each other, tho' not interwoven: These Fibres run parallel to each other, and in the same Direction with the Length of the Bone. In some Places this Membrane is thicker than in others, and seems to consist of Fibres variously decussating each other: But this is produced by the Muscles, and their Tendons, running along the Periosteum, before they are inserted into the Bones. *Clopton Havers*, also, observ'd, that the Periosteum running along the Bones was wanting in those Places, where the Ligaments uniting the articulated Bones arise; and that the Periosteum runs upon the Ligaments, and is thus convey'd to the adjacent Bone: Hence he imagined, that the Periosteum was only a Continuation of one and the same Membrane, which, drawing its Origin from the Dura Mater, covered the Cranium, and is thence extended over the Surface of all the other Bones, and is so perfectly accommodated to all their Cavities and Eminences, that it exactly covers their whole Surface. But that Part of the articulated Bones, which is contained within the Ligaments which constitute the articular Capsulæ, are destitute of the Periosteum, which, there, is separated from them, and runs upon the Ligaments. Nothing, therefore, can be either conveyed to or from the Bones, except by means of the Periosteum: All the Vessels, then, conveyed to the Bones for their Nutrition and Growth, or which penetrate into their cellular Part, or are, through distinct Perforations, carried to the Marrow collected in their middle Cavities, previously pass through the Periosteum. In like manner, the small Veins which return the Blood, pass through that Membrane, which, in consequence of this Circumstance, is of an highly vascular Nature, as *Ruyssch*, in his *Adversar. Decad. 3. Tab. 2. Fig. 8.* has beautifully demonstrated. Besides, the Periosteum is closely united to the Bone by means of the Ramifications of Vessels, convey'd from the former to the latter, and the Veins returning from the latter to the former, almost in every Point: Hence it adheres very firmly to the Bone, especially in young Persons; for in decrepit Old-age, where many of the Vessels are abolished, the Periosteum is observed to adhere but slightly to the Bone. *Clopton Havers*, before the Discoveries of *Ruyssch*, being surpris'd at the firm Cohesion of this Membrane with the Bones, believed, that this happened principally at that Age in which the Bones are soft, and, as it were, glutinous. This Physician, also, observed, that it was united to the Bone by means of small Fibres sent out from it into the Substance of the Bone. But it was afterwards discovered, by the Injections of *Ruyssch*, that these Fibres were small Vessels sent from the Periosteum to the Bone in an incredible Number. Nor are the larger Bones alone cover'd with a vascular Periosteum; but, also,



the small Bones of the Ear, which some great Men have asserted to be without it. The internal Cavity of the Tympanum is, also, covered with its Periosteum, which is furnished with innumerable Vessels, as *Ruyfch*, in *Epist. Anatom.* 9. has shewn by the Figure he there gives of it.

Hence arises a third Series or Class of Disorders incident to the Bones.

Whatever Cause therefore hinders the free Passage of the Humours through the Vessels of the Periosteum into the Bone, or prevents their Return from the Bone to the Periosteum, may produce Disorders in the Bone, though the primary and immediate Cause of these Disorders is not lodged in the Substance of the Bone, properly so called, but in the Periosteum only. The Reason of this is sufficiently obvious, from what has been said in the preceding Paragraph.

The Bones have an internal Periosteum, which lines and covers the Cavities containing the Marrow, distributes the arterial Vessels to the medullary Vesicles, and receives an incredible Number of venous Vessels, both large and small.

The internal Periosteum is not so easily exhibited to the Senses as the external; yet there seems to be such a Membrane, though of an highly tender Nature, since it is safely defended by the Bone which covers it. The Dura Mater covers the Cranium, and serves it instead of a Periosteum: But as this Membrane sends off Vaginae, by which the Nerves arising from the Medulla Oblongata and Spinalis are safely defended, it was necessary its Fabric should be somewhat thicker and stronger. This Membrane, being in the large hollow Bones, defended from all external Injuries, and serving only to cover the internal Surface of the Bones, and receive the Vessels, does not require so great Firmness and Strength as the external Periosteum; and, in consequence of its Slenderness, is with more Difficulty discovered: In those Bones whose internal Surfaces are totally cellular, such a continued Membrane is not easily discover'd, since the Structure and Fabric of such Bones is highly intricate and perplexed. Nor is it easily discovered about the Extremities of the larger Bones, where the receding bony Laminæ form a surprisingly spongy Substance. But this Membrane is principally found in that Part of the larger Bones, which, by a close Union of the bony Laminæ, is most solid, and has a large Cavity in its Middle, destined for containing the Marrow. *Ruyfch*, in *Adversar. Decad.* 3. informs us, that Anatomists often talked at random, with respect to the Membrane which they suppose to surround the Marrow; and asserts, that in those Bones whose Cavities are full of an osseo-spongy, or an osseo-filamentary Substance, there is no common Membrane investing the Marrow found. Nor is this to be wonder'd at, since, in such Bones, the Marrow is not collected into a common Cavity, but dispersed into different Cellulae. But *Ruyfch*, in *Theaur.* 10. *Tab.* 3. *Fig.* 2. describes the Fabric of the Os Humeri of a Child, when longitudinally divided into two, in the following manner, and has given us a Representation of it. *The interior Substance*, says he, *which is of an osseo-spongy Nature, is furnished with a medullary Liquor, and lined with a Membrane as thin as a Spider's Web; and this Membrane is furnished with small Arteries full of Blood, which, by that means, give a redish Colour to the Membrane.* In the Part, also, last quoted, the same Author describes a Portion of the Os Femoris of an Infant, in the Cavity of which, when divided with a Saw, there appears a slender Membrane, like a Spider's Web, which surrounds the Marrow; and, also, the small Arteries dispersed through this Membrane: Hence it is sufficiently obvious, that there is such a slender Membrane in the internal Cavities of the Bones. But it may seem dubious, whether this Membrane belongs to the Marrow, or is the internal Periosteum of the Bone; or whether it answers both these Purposes. But if we consider what *Clopton Havers* has, in his *Osteologia Nova*, advanced, concerning the Structure of the Marrow, it is highly probable, that this Membrane is distinct from it; for that Author informs us, that the entire Marrow is covered with a thin and pellucid Membrane, which, in some Places, is of a redish Colour, as if small Blood-vessels were distributed through its Structure: But, when he cautiously separated this Membrane from the Marrow, which was of a pretty firm Consistence, he often saw entire Vessels running along the Surface of the Marrow. And he says, he was absolutely certain, that these Vessels did not at all belong to the incumbent Membrane then separated from them. Immediately after, he subjoins, that this Membrane not only adheres to the Bone by small Veins; but that it, also, intinuates itself into the transverse Pores, found in the internal Surface of the Bones. From this Description it is sufficiently obvious, that this tender Membrane adheres to the internal Surface of the Bones; and that, under it, Vessels, formed into another Membrane, run along the Surface of the Marrow; and, consequently, that the internal Periosteum is distinct from the Marrow contiguous to it. The Use, therefore, of this internal Periosteum is not only to distribute the arterial Vessels to

the medullary Vesicles, and receive the venous Vessels returning thence, but, also, by means of the Vessels sent into the Substance of the Bones, and returning thence, to be subservient to the Life and Nourishment of these Bones. This is, perhaps, evinced in the surprising Phenomena observable in some Disorders of the Bones. *Ruyfch*, in *Theaur.* 10. N<sup>o</sup> 176. not only describes, but, also, gives us a Figure of an Os Cubiti, rendered carious and corroded; in whose Cavity there was a bony Pipe, entirely separated from the exterior Substance of the Os Cubiti, and capable of being moved every Way. It is not improbable, that, by some Disorder of the internal Periosteum, the interior Part of the Bone, which is principally nourished by that Periosteum, had been affected, and that the tubular internal Part of the Bone had been separated from its external Part.

Hence arises a fourth Division of Disorders incident to the Bones.

For since this internal Periosteum, as we have already observed, consists of Vessels, so Obstructions, Inflammations, and all their Consequences, may happen therein. Hence the contiguous Bone will be affected, and the Misfortune be next communicated to the subjacent Marrow.

The Bones have in their Cavities an infinite Number of Vesicles, filled with a subtile medullary Oil, which they keep, distribute not only among each other, but, also, between the Interstices of the bony Laminæ, the Cavities of the Joints, and this thro' streight Pores. These Vesicles are furnished with Arteries, Veins, Lympheducts, adipose Ducts, small Nerves, and slender Membranes.

We have already consider'd the Vesicles full of a medullary Oil, lodged in the cellular Parts of the Bones about the Joints: But here we treat of the Marrow, properly so called, which is lodged in the Cavities of the larger Bones, and consists of an infinite Number of Vesicles, collected and united in one common Membrane. *Clopton Havers*, as he informs us in his *Osteologia Nova*, observed, that the medullary Oil is not lodged in the Cavity of the Membrane surrounding the Marrow, but is collected into small Vesicles, by the Union of which, larger Lobes, cover'd with a peculiar Membrane, are form'd; and of these Lobes the whole Mass of Marrow observable in the Cavities of the larger Bones is composed. But these minute Vesicles, containing the medullary Oil, seem to communicate with each other, as do, also, the larger Lobes formed by them: Hence this Oil may be convey'd, not only to the Substance of the Bone, but, also, to the Cavities of the Joints, from all, and even the most distant Parts of the Marrow; for, when *Clopton Havers* wounded the Membrane of such a medullary Lobe, he found that the medullary Oil was not all at once, but gradually, discharged; but that the Whole was, however, gradually evacuated by a gentle Compression, without breaking the minute Vesicles. When he, by means of the Fire, melted the harder Parts of the Marrow, he saw it gradually drop away, leaving the Vesicles and Lobes empty: This is, also, confirmed by this, that by an Increase of Motion, and a Defect of Nutrition, the Quantity of the Marrow is decreased; but enlarged by Rest and High-living, as *Du Verney*, in *Academ. des Sciences, Ann.* 1700. says, has been confirmed by various Experiments. The same Author, also, describes the Fabric of the Marrow to be like what we have represented it. But the medullary Oil seems capable of being discharged from its containing Vesicles in three Manners; for it is either derived to the Extremities of the Bones, through the communicating Vesicles and Lobules, and there issues through the Pores of the Cartilages, with which the Extremities of the articulated Bones are incrustated, into the Cavities of the Joints, that thus their Motion, as we have already observed, may be performed, without any Attrition and Abrasion of the Bones moved; hence, also, it is, that, after violent Motion, the Quantity of the Marrow is lessen'd: Or, perhaps, this thin and highly attenuated Oil enters the small absorbent Veins, and is mixed with the Blood; for it is certain, that, in some acute Diseases, we often observe the whole Fat of the Body almost consumed in a few Days. And, in the last Place, this medullary Oil seems to enter the Substance of the Bones, and procure to them a due Degree of Cohesion and Unctuousity. When *Clopton Havers* was investigating the particular Way, by which this medullary Oil insinuated itself into the Substance of the Bones, he found that their internal Lamina was full of numberless Perforations, thro' which, however, after an exact Scrutiny, he saw, that no Vessels were either conveyed to the Marrow, or returned from it. In the next succeeding Lamina he observed similar Pores, though not corresponding directly to the others, but situated in different Parts: For which Reason the medullary Oil cannot, from the Pores of the internal Lamina, directly enter those of the succeeding Lamina, but, must, after it has entered the Pores of the first Lamina, run between that, and the second, till it meets with similar Pores; after which it runs between the second and third Laminae, till it enters the Pores of the latter; and is thus successively



cellively distributed between the Laminæ of the Bone, till it arrives at its Surface. Those Perforations, which the medullary Oil entered, were, by that Author called transverse Pores; and he called those Passages, thro' which the medullary Oil was convey'd between the Laminæ, before its Reception into the transverse Pores, longitudinal Pores, because they run in the same Direction with the Fibres which constitute the Laminæ of the Bones. The same Author, also, informs us, that these longitudinal Pores are not to be discovered without the Assistance of the best Microscopes, but that they are of all other Parts most easily discovered in the Ribs. He, also, adds, that he could clearly distinguish them in the thickest Part of the Scapula, where the bony Laminæ immediately cohere to each other; and he observed, that the Marrow which entered these longitudinal Pores, adhered to their Sides like Oil. He, also, affirms, that in an human Bone, consisting of eleven or twelve distinct Strata of Laminæ, he observed these Pores. The transverse Pores, then, only transmit the medullary Oil; but those of the longitudinal Kind convey it between the Laminæ of the Bone, so that the Interstices between these Laminæ are lubricated by this Oil. But such a Distribution of the medullary Oil thro' the Substance of the Bone, obtains only in those Parts where the bony Laminæ are contiguous to each other. But about the Joints, where they are at a considerable Distance from each other, are found the medullary Vesicles already described, and which are easily capable of distributing such an Oil.

In consequence of this curious Structure, the medullary Oil is most equably distributed thro' the Substance of the Bone; and since the internal Lamina of the Bone must transmit the Quantity of Marrow subservient to its own Uses, and those of all the incumbent Laminæ, hence there is found in it the greatest Number of transverse Pores, a smaller Number in the succeeding Lamina; and the Number gradually decreases, in proportion, as the Laminæ approach nearer to the Surface of the Bone, as *Clapton Havers* found upon accurate Observation.

Thus the Bones, the most dry and terrestrial Parts of the human Body, are supply'd with this fine and subtile Oil, by means of which it, perhaps, is, that the Union of the terrestrial Parts is maintain'd, since it is interposed between them, as a kind of Glue; for the Bones, when all the Oil is, by means of Fire, extracted from them, become friable; but when calcined in a strong Fire, and immersed in Oil, they again resume their Cohesion, as is shewn under the Article FIBRA.

Hence the Reason is obvious, why the Bones, which are furnished with such a large Quantity of pinguious Oil, are so good Fuel for the Fire; so that *Herodotus*, in his fourth Book, intituled *Melpomene*, informs us, that the *Scythians*, when they wanted Wood, boiled the Flesh of their Sacrifices, by kindling their Bones; and if proper Vessels were wanting for this Purpose, they threw all the Flesh into their Bellies, with an Addition of Water, after which, they put Fire to their Bones, by which means an Ox, in some manner, boiled himself. Hence, also, appears the Reason why the best-prepared Skeletons, where the larger Bones are perforated, and all the Marrow discharged by boiling, again become not only yellow, but are often moist with a pinguious Oil; for the medullary Oil, distributed between the Laminæ of the Bones, gradually advances to their Surface.

This medullary Oil is separated from the arterial Blood, collected in the medullary Vesicles, and thence discharged for the several Purposes destin'd for it by Nature. *Clapton Havers*, in his *Osteologia Nova*, informs us, that he observed the Arteries distributed to the Marrow quite distinct from those which convey the vital Humours thro' the Substance of the Bones; and that they were, also, convey'd to the Marrow thro' proper Perforations in the Bone, though in such a manner as not to penetrate the Bones in a direct Course, but run obliquely a considerable Way thro' the Substance of the Bone, before they reach'd the Marrow. The same Author observed an Artery of this Kind to run an Inch and an half within the Substance of the Bone, the Thickness of which, in that Part, hardly exceeded the eighth Part of an Inch. But he could not discover, whether this Artery, thro' all its Course, distributed any small Ramifications thro' the Substance of the Bone. After such an Artery comes into the Cavity of the Bones, 'tis generally divided into two Ramifications, each of which runs to opposite Extremities of the Bones, and sends off numberless small Ramifications thro' the medullary Vesicles. But tho', by means of a Microscope, this Author observed many small Blood-vessels dispersed thro' the most minute medullary Vesicle, yet he ingeniously confesses, that he could not discover whether every Vesicle was furnished with such Blood-vessels: And he seems to be of Opinion, that this Circumstance was by no means necessary, since these Vesicles communicate with each other, in consequence of which, the medullary Oil, secreted by the arterial Fabric of some of them, may be convey'd to the others. But, by the Injections of *Ruyfch*, it is certain, that the Whole of the Marrow is furnish'd with such Vessels, in consequence of which, 'tis highly probable, that a similar Apparatus of Vessels is found in all the medullary Vesicles.

After the medullary Oil is secreted, the remaining Blood is convey'd to small Veins, which, being collected into larger Trunks, at last terminate in one Vein, which generally goes out at the

same Perforation at which the Artery enters. The same Author, also, observed, that the minute Veins arising from the Marrow entered the Substance of the Bones, and there disappeared. Perhaps these Veins return the Blood convey'd to the Marrow by the Arteries for its Nutriment, which nourish the Blood; for, in many other Parts of the Body, there is observed a double Apparatus of Arteries and Veins, one of which is subservient to the Secretion of a particular Fluid, and the other to the Life and Nourishment of the Part.

But since these Parts become red by Injections, which were before white and pellucid, 'tis obvious, that there are, in such Parts, small Series of Vessels, and consequently lymphatic Vessels. This is, also, certain from this, that all the Cavities of the Body, whether large or small, are moistened by a fine exhaling Liquor, in consequence of which there must be in these Parts similar absorbent small Veins.

But whether in these there are any adipose Ducts, by means of which the medullary Oil, collected in the Vesicles, is convey'd to particular Parts, *Havers* confesses, he could not discover. He rather thought, that the contiguous Sides of these Vesicles were full of Pores, by means of which they communicated with each other. But he found considerable adipose Ducts, by means of which the medullary Oil was convey'd from the cavernous Parts of the Bones to the Cavities of the Joints. *Du Verney*, in *Mem. de l'Acad. des Sciences*, An. 1700. has demonstrated, that there are Nerves in the Marrow; for he observed, that, in Conjunction with the Vein and the Artery, a Nerve was convey'd thro' the Bone to the Marrow. He, also, observed, that these three Vessels were inclosed in a common kind of Vagina, which was a Production of the Periosteum. Besides, he proved by undeniable Experiments, that the Marrow was furnished with a Sense of Pain; for, in the Hospitals, when, after the Amputation of Limbs, the Dressings were renewed, he often ordered the Marrow to be somewhat roughly touched; upon which the Patients immediately expressed a Sense of Pain. And, that this Truth might be the more effectually evinced, before the Members of the Royal Academy at *Paris*, he cut off the Thigh of a live Animal, and, waiting till the Pain of the Operation was, in some measure, abated, he thrust a Probe into the Marrow; upon which the Animal forthwith discovered Marks of the most intense and exquisite Pain.

Hence arises the fifth and last Class, or Division, of the Disorders incident to the Bones.

Since, in the most concealed and internal Marrow of the Bones, there are such a Variety of Humours, and such a Number of Vessels, almost all the Disorders already enumerated may, also, happen here; so that this is another, and the last, Division of the Disorders incident to the Bones: For, first, we considered those Diseases which affect the Substance of the Bone, properly so called; the Differences of which were drawn from their possessing either the broad and cellular Part near the Joints, or the middle and more solid Parts; secondly, we considered the Vesicles full of a medullary Oil lodged in the cellular Parts of the Bones, and shewed, that another Kind of Disorders arose from them; thirdly, we considered the external Periosteum surrounding the Bones, and shew'd, that it might prove the Origin of another Species of Disorders; fourthly, we shew'd, that almost the same Misfortunes were incident to the internal Periosteum; in the fifth and last Place, we have considered the Structure and Use of the Marrow in the Cavities of the larger Bones, according to the Discoveries of the best Anatomists, that, by this means the Disorders incident to this Part might be the better known. From these, duly considered, we are better enabled to form the Diagnostic and Prognostic of Diseases of the Bones, and to make Choice of proper curative Intentions, which ought to differ according to the different Natures of the Disorders.

If the medullary Oil stagnates in its proper Vesicles, Emunctories, or in the Interstices of the Bones, and, by the vital Heat and Motion, becomes acrimonious, putrid, and tanious, it will prevent a new Secretion, obstruct the Vessels which convey the Humours to the Part, and those which secrete them, and inflame its proper Vesicles. Then it will produce a Suppuration, or, by a gangrenous Putrefaction, corrupt the Fluids and Solids. Hence the Substance of the Bone, not only destitute of Vessels, and vital Fluids, but, also, corroded by acrid Humours, is changed into a kind of emenitious Calx, where it is most thin and slender, that is, in the Cellule of the Apophyses. By this means violent Pain, Heat, Pulsation, Tumor, Abscesses, and Caries, are produced. Such a Stagnation may arise from every Obstruction; but, if it arises from an internal Cause, then the Disorder is called *Spina Ventosa*.

In this Aphorism are considered the Diseases incident to the Bones, when the medullary Oil secreted from the arterial Blood, collected in the Vesicles dispersed through the cellular Parts of the Bones, or accumulated in these Vesicles in the Marrow, becomes stagnant and corrupted.

From what has been said, 'tis obvious, that this Oil is collected in these Vesicles for certain Purposes; and that it, perhaps, stag-

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nates for some time, or, at least, moves very slowly in them; for in Animals, kept in a State of Ease, 'tis found to be accumulated in large Quantities, whereas, after violent Exercise, 'tis much diminished. By Stagnation, therefore, is meant such a Condition of the medullary Oil, or of the Parts which contain and convey it, as renders it incapable of performing those Motions, which, in a State of Health, it ought necessarily to perform. For this medullary Oil ought to be capable of discharging itself into the Cavities of the Joints, in order to lubricate them. It ought, also, to insinuate itself into the Interstices of the bony Laminæ; it ought, in like manner, to pass freely thro' these minute Vessels into those adjacent, till, at last, it is convey'd to the Parts where it is requir'd. By every Cause, therefore, which hinders such a Motion of the medullary Oil, a Stagnation will be produced. But we observe, that the mildest pinguious Substances spontaneously assume a violent Degree of Acrimony, some sooner, and some later. Mild and recent Oil of sweet Almonds, when exposed to the Summer-heat, in a few Days, becomes so acrimonious, as to burn the Fauces, when it is swallowed. Butter is generally corrupted in the same manner, tho' not so soon. 'Tis true, this Corruption is surprisingly accelerated by the free Access of the Air; so that the Marrow, stagnating in the Cavities of the Bones, requires a longer time before it is corrupted, though, by its Continuance in that State, it will, at last, degenerate. Now, the vital Heat will soon render this stagnant Oil putrid, especially since it has a natural Tendency to Putrefaction; for, in a few Days, the Marrow of the soundest kill'd Animals is generally corrupted, and becomes intolerably fetid; and, its oleous Tenacity being destroy'd, it is dissolved into a thin, but highly putrid Sines. It will be sufficiently obvious, what terrible Misfortunes must necessarily be the Consequences of this, if we consider the highly tender Fabric of those Parts which secrete, collect, and convey, the medullary Oil; for as soon as the Arteries, convey'd to the Marrow, have reach'd to the Cavities of the Bones, laying aside, in all Probability, their callous Coats, they become so soft and pulpy, that the Marrow of an old Ox may be easily reduced to an oleous Mass between the Fingers. When a Corruption, therefore, is once begun here, the medullary Oil, converted into an acrid Sines, will corrode the Vessels which contain it, and, in like manner, destroy the adjacent sound ones. Thus, such a Misfortune, happening in a small Portion of the Marrow, will be soon propagated thro' the adjacent Parts. These small Vessels may, therefore, be inflamed, and all the Consequences of an Inflammation be produced in the Marrow. But a benign Suppuration can hardly happen here, because putrid Serum is of an highly acrimonious Quality; and tho' such a Suppuration should happen, yet the Pus, collected in a close Place, and not being capable of having itself discharged, would, in like manner, become attenuated and putrid. Hence, when the vital Vessels of the Marrow are destroy'd, a gangrenous Corruption, of the worst Kind, must necessarily ensue.

Besides, the Malignity of this putrid Sines, being daily augmented, renders the Disorder worse, acts upon the whole Surface of the internal Cavity of the Bone, and will, consequently, soon destroy the external Membrane of the Marrow, and the internal Periosteum. The Substance, therefore, of the Bones thus destitute of vital Vessels will be at once corroded and destroy'd by an acrid Sines. But this will happen soonest in the largest Parts of the Bone, or in the Cellule of the Apophyses, where the bony Substance is most tender, and the medullary Vessels are lodged between the receding Laminæ of the Bone. Hence, in such Places, the corrupted medullary Oil will act upon both Sides of the bony Laminæ, and, consequently, soon destroy them. But, about the most solid Part of the Bones, the bony Substance is more slowly destroy'd, because the Bone is there thicker, and the corrupted Sines only touches the internal Lamina of the Bone. But, as this Sines is attenuated in proportion as it becomes acrimonious, it will gradually insinuate itself into the Pores of the external Lamella; and thus it may be convey'd between the bony Laminæ, in the same manner with the medullary Oil. By this means a Corrosion of the Substance of the Bone will happen; so that the most solid Bones, their Cohesion being destroy'd, become a kind of Calk. Thus, under the Article FRACTURA, 'tis shewn, that the largest Bones of the Body, when become carious, are broken by a very small Force.

Since, therefore, an Inflammation, with all its Consequences, may happen in these Parts, and since the Marrow is furnished with a Sense of Pain, the Reason is obvious, why Pain, Heat, and Pulsation, are found in these Parts. Surprising Tumors of the Bones have, also, been observed to be produced by this means, since the bony Laminæ, mutually receding from each other more and more, especially near the Joints, have enlarged the Bones far beyond their natural Size. Hence 'tis obvious, that the more soft cellular Parts, about the Joints of the Bones, often degenerate in a very surprising manner; and that Inflammations and Abscesses may, sometimes, be found in them. But, when the medullary Oil is corrupted, terrible Misfortunes happen, and even a violent Caries of the Bones, which is said to be present, when the corrupted Bone, as it were, moulder into Powder, and no longer reaches the Probe. Hence *à fortiori*, in the

second Chapter of his eighth Book, informs us, "That, in a Caries of the Bones, we may know whether the Caries is deep, or superficial, by the Probe's penetrating farther, or less, into it." A Caries, therefore, is the worst of all the Disorders incident to the Bones, since it generally indicates a total Corruption or Corrosion of them; for the slighter Disorders of the Bones are generally cured by an Exfoliation, or a Separation of the corrupted Laminæ; whereas a Caries can never be cured by Exfoliation, but must, by means of the Knife, or actual Caustery, be removed, till we come to the live Parts.

Since, therefore, many Causes of an Obstruction may produce such a Stagnation of the medullary Oil, so 'tis obvious, that the terrible Disorders arising from the medullary Oil may draw their Origins from Causes very various and different. But Compressions or Destructions of the Vessels, by external Causes, are rarely form'd in the Marrow, because it is pretty safely defended by the Bone. 'Tis, however, pretty certain, that the Marrow may be injured by violent Contusions, or Fractures of the Bones. But when a Corruption of the medullary Oil, without any external Injury, arises purely from an internal Disorder, the Disease is generally, by Physicians and Surgeons, called a Spina Ventosa, which, according to Doctor Freind, in his History of Physic, was first described by Rhazes, an Arabian Physician, and received the Name of Spina Ventosa, because it consisted in a Corrosion and Corruption of the Bone, accompany'd with a pungent Pain and Tumor. For when this Disorder, beginning with a Corruption of the Marrow, has corroded the Bone, the Teguments are surprisingly swelled, and the Substance of the Bone often greatly distended. The Name of Spina Ventosa displeased Marcus Aurelius Severinus, who wrote a whole Treatise on this Disorder, and would rather have it called by a compound Greek Word, *Pædarthrocace*, which signifies a Disorder of the Joints of Children, because this Disease is most frequently incident to Children, and most generally observed about their Joints. This Author gave the following Definition of a *Pædarthrocace*: "This Disorder, says he, in his Treatise *de recond. Abscess.* "Natur. is a corrupted Abscess, or Sphacelation of the Bone, happening about the Joints of Children, in consequence of the primary Sordes of the Sperm, and menstruous Blood, not being sufficiently purged off, but collected and putrefied." He did not, however, deny, but this Disorder might happen to Adults; and in the same Treatise, he gives us an Instance of a Woman, arrived at the Years of Maturity, who laboured under this Disorder. Petrus de Marchettis, in his *Observat. Medic. Chirurg.* affirms, that he has known both Men and Women to labour under this Disorder till the twenty-fifth Year of their Age, but no longer; unless, having before been afflicted with this Misfortune, they were not as yet recovered. But as, in rickety Children, the Tumors of the Bones, about the Joints, are frequently observed without any Corruption of them, the Name of *Pædarthrocace* seems rather to be too ambiguous. And Severinus himself, in another Passage, of the same Work, seems to be in a kind of Hesitation, and thinks, we ought not absolutely to assert, that the Spina Ventosa is the same thing with the *Pædarthrocace*. 'Tis, therefore, proper to retain the Name of Spina Ventosa, in order to distinguish this Disorder, since it was used by Rhazes, the first Physician who wrote any thing distinct upon this Disorder; and the Meaning of the Word may be sufficiently limited from what has been already said; namely, that it is a Corruption of the Bone arising from a peccant Quality of the Marrow; for which Reason the Corruption begins in the interior Part of the Bone, and is gradually propagated thro' all its Substance, till, the Periosteum being corroded or torn by the tumid Substance of the Bone, a Pain and Tumor of the superincumbent Parts are produced. But, when the Corruption begins in the exterior Parts of the Bone, it proceeds gradually to the more internal Parts; and though, at last, it affects the Marrow itself, yet still it may be called a Caries of the Bone; by which means all the Disputes of the Learned, whether the Spina Ventosa of the Arabians was known and described by the Greeks, will be cut off; for that a Caries of the Bones, and a Sphacelation of them, were known to the ancient Greeks, is certain; but we have no Accounts, that that Species of Corruption of the Bones, which arises from a previous Disorder of the Marrow, was known among them.

'Tis obvious, that the Signs of this Disorder, when at its Height, are the same with those of a deep Inflammation, which is not exasperated by the external Touch.

'Tis to be lamented, that this Misfortune is very often not to be discovered, till too late; when, for Instance, the Bone being totally corrupted, the superincumbent Parts begin to be raised in a Tumor. Now 'tis obvious, that a Discovery of this Kind must necessarily be very difficult, if we only consider, that the Disorder is lodged in the Middle of the Bones. The following Considerations may, however, give us some Light in this Affair. If we know, for Instance, that there is such a morbid Cacoehymy in the Body, as is most frequently observed to affect the Bones; such as a Lues Venerea, the Scurvy, and, in young Patients, the Rickets, which last Disorder often affords a strong Suspicion of a latent



latent Lues Venerea. From these we know, that the Causes predisposing to this Disorder are in the Body. But the almost only Sign of the Presence of the Disorder is, when a profound, obstinate, and intense Pain affects, as the Patients say, the internal Parts of the Bone, and is accompany'd with a Sense of a slow Corrosion. Besides, this Pain is increased by the Heat of the Bed, by violent Exercise, and the immoderate Use of Aromatics and Wine. But tho' the Part affected is strongly press'd or rub'd, yet the Pain is not by this means increased. Nor is this to be wondered at, since the hard Bone hinders the external Touch from acting upon the Part affected. These are the Signs of the Disorder, when beginning; but when, after the Corrosion of the Bone, the external Periosteum begins to be affected, the Pains are increased, and greatly augmented, by being rudely touch'd; at the same time a soft Tumor of the superincumbent Parts arises, and, for the most part, the Substance of the Bone is previously raised in a Tumor; and, in this Case, the Disorder is easily discovered, but too late, because the whole Substance of the Bone, being already corrupted, admits of no Cure, but will either be spontaneously separated from the live Parts, or must be remov'd either by the Knife, or the actual Cautey.

A difficult Separation, Absterfion, and Cleansing of the Part, prognosticate many Misfortunes, and a difficult Cure.

If we carefully consider what has been hitherto said, concerning the Nature of this Disorder, it will be sufficiently obvious, that, in such a Case, the worst Symptoms are to be dreaded, and that the Cure must be highly difficult; for, in the middle Cavity of the hard Bone, is lodged the corrupted medullary Oil, which, in order to the Cure, must be removed, and washed away. But there is no way in which it can be discharged, unless the Bone is previously corroded, or a Perforation artificially made in it. This Oil, in the mean time, will by its Continuance, and the Heat of the Body, become daily more acrid, by which means all the Symptoms will be increased. Besides, if the internal Surface of the Bone should be corroded by this acrid Sanies, tho' the Parts of the corrupted Bone should be separated from the sound live Parts, yet they would remain in the middle Cavity of the Bone, and, by their Bulk and Asperity, injure the tender Marrow, and by that means produce new Misfortunes. 'Tis certain from practical Observations, that surprising Degeneracies of the Bones, intolerable Pains, and Death itself, have been produced by this Disorder.

The Cure of this Disorder is most commodiously attempted, first, by filling all the Vessels with such Decoctions as are not only of an highly penetrating and abstergent Nature, but, also, resist Putrefaction; secondly, by moving all the Humours strongly, and soliciting a Discharge of Sweat, by means of warm Vapours, properly apply'd to the Body; and, thirdly, at the time the Sweat is flowing, by determining the Motion of the Humours to the Part affected, by means of Fomentations, and warm Vapours apply'd to it in particular.

When the Tumor of the superincumbent Parts opened spontaneously, *Rhazes*, according to Doctor *Freind*, in his History of Physic, was for no other Method of Cure, than removing the corrupted Part of the Bone, either by the Knife, or the actual Cautey. *Petrus de Marchettis*, in *Observat. Medic. Chirurg. rarior. Sylloge*, as soon as a Patient complained of a pungent Pain in the Joints of his Hands or Feet, tho' there was no Tumor, yet ordered a deep Incision to be made, and the corrupted Part of the Bone to be removed by the Knife, and the actual Cautey. But, before this cruel Method is used, the following Measures, which have often been attended with Success, may be taken.

1. The Fomes of the Disease is lodged in the Cavities of the Bones, in consequence of which external Remedies cannot reach it, except in so far as, being received into the bibulous Veins, and mixed with circulating Blood, they are along with it convey'd thither. The only Method, then, remaining, seems to be, to fill the Body with a thin Fluid, which is not only penetrating and detergent, but, also, resists Putrefaction. Then let this Fluid be carry'd through the Vessels with an accelerated Motion, and its Efficacy, as much as possibly, determined to the Part affected; for in this Case 'tis highly probable, that such a Fluid being convey'd to the Part affected thro' the vital Vessels lodged in the Substance of the Bone and the Marrow, as yet not destroy'd, the Putrefaction may, by that means be stop'd, the corrupted Parts separated from such as are live and sound, the medullary Oil diluted, reformed by the bibulous Veins, and carry'd out of the Body by Urine or Sweat; for that the putrid Humours, lodged in the Cavities of the Bones, may be reformed by the Blood, is sufficiently obvious from a putrid hectic Fever, which, when rising to a great Degree of Malignity, often infects the Blood with a violent Cacoehymy. But the liberal Use of such a penetrating, detergent, and antiseptic Fluid will hinder the absorbed putrid Humours from proving injurious. The best Ingredients for preparing a Fluid of this Kind are those Woods which are furnish'd with an aromatic Fragrance, and a large Quantity of bal-

famic Resin, such as Juniper-wood, Box-wood, Oak, and, what is of all others the most proper for this Purpose, Guaiacum-wood, a Decoction of which, when duly prepared, is gently acid, and highly balsamic. But as these Woods are hard, and contain a large Quantity of Resin, the Water cannot easily penetrate into them, unless they are previously shav'd down, digested for some time in a gentle Heat, and boiled for some Hours in a close Vessel. Sometimes, when these Woods stand in Digestion, a small Quantity of some alkaline Salt is added, that the Water may the more easily penetrate into their Substance; and, towards the End of the Boiling, a few Ounces of rectified Spirit of Wine are to be added, that all the resinous Portion of the Woods may be the better dissolved. Thus:

Take of green and weighty Guaiacum-wood, ten Ounces; and of the Salt of Tartar, half a Dram: After these are digested in six Pints of Water for twenty-four Hours, then boil for two Hours in a Vessel placed within another, (in Diplomate) adding towards the End four Ounces of rectified Spirit of Wine. Then let them boil a little, and keep for Use; and upon the Residuum of the Decoction pour three Pints of fresh Water, and let them boil for four Hours.

Of the former Decoction, let the Patient take four Ounces, four times a Day, in the Morning at Seven o'Clock, then at eleven, then at four in the Afternoon, and lastly at Seven in the Evening.

The weaker or second Decoction he may use for common Drink.

Decoctions of the Woods of Juniper, Sassafras, Box, and Oak, may be prepared in the same manner.

The Fomentations are to be Linen Cloths soak'd in these Decoctions.

In such a Decoction may be infus'd Shavings of the Wood of Sassafras, which, being furnish'd with a kind of volatile Fragrance, cannot bear long boiling without losing its medicinal Virtues. The Patient is to take a few Ounces of this Decoction three or four times a Day, using, at the same time, for common Drink, a weaker Decoction, prepared by an Affusion of Water to the Residuum of the former. A larger or a lesser Quantity of these Decoctions is to be us'd according to the Age, the Temperament, or Strength, of the Patient; but 'tis always beneficial to drink as much of them as he can bear; for by this means the whole Body will be fill'd with a penetrating detergent and antiseptic Liquor, which is the first Intention of Cure.

2. After the Vessels are full, and the Body begins to become tumid by a liberal Use of these Decoctions for some Days, it is expedient to accelerate the Motion of the Humours thro' the Vessels: We may at Pleasure increase the Motion of the Blood by Frictions, for which Intention they are generally us'd; but this Effect is most commodiously produc'd by a warm Vapour surrounding and acting upon all the Parts of the Body, and by that means procuring a Sweat; by which the fluid Drink is dissipated, and a fresh Opportunity afforded of filling the Body again with the same Decoctions: For this Purpose the Patient is to be stript naked, cover'd with a waxed Linen Cloth and exposed to the Steam or Vapour of warm Water, or, which is of all others the most effectual, that of Spirit of Wine. This penetrating Vapour can hardly act upon the Body for a few Minutes, before the Patient begins to become warm, and have his Body cover'd with a profuse Sweat, which is sometimes observ'd to smell of the Decoction drank. By this means so profuse Sweats are excited, that the most robust Patients often fall into Deliquiums, when expos'd for a considerable time to the Steam of kindled Spirit of Wine. For this Reason great Caution is necessary, since we know from Experience, that the Use of this Method, in a Lues Venerea, has sometimes destroy'd the Patients, whilst, by unskillful Practitioners, these Sweats have been longer continued, than the Strength of the Patient would admit. In weak Constitutions 'tis sufficient to continue the Sweating for half an Hour every Day, and the most robust and vigorous can hardly bear it for two Hours; for which Reason 'tis expedient, that the Physician should always be present, in order to judge how long the Sweat should be continued. After this the Patient is to have his Body wiped with warm Linen Cloths, and be laid in a warm Bed; by which means he will sweat gently for an Hour or two. But since, after the Sweat, the Access of the cold Air would produce the worst of Consequences, 'tis expedient the Air of the Chamber should be sufficiently warm, which End is most commodiously obtain'd by kindling proper Materials in a Stove. For this Purpose, also, some rather order, that the Patient should be in Bed, without a Shirt, and have the Steam of kindled Spirit of Wine convey'd to his Body, by means of a Funnel under the Bed-clothes; for by this means the Action of the cold Air on the Body will be prevented. But whether the Patient sweats in a Bed, in a Quadrangular Box, or under what is commonly called a *Craticula*, the Head is always to be free and disengag'd for fear of a Suffocation. After the Sweating is over, Broth prepared



Of lean Flesh, or a small Quantity of Wine, is to be exhibited, that the Strength, which is often languid after such profuse Sweats, may be recruited.

'Tis sufficiently obvious, that, by an accelerated Motion of the Humours, such a penetrating Decoction must be convey'd thro' the whole Body; but 'tis requisite, the Efficacy of the Medicine should act principally upon the Part affected. There are Means of determining the Efficacy of Medicines, at Pleasure, to any Parts of the Body. This End is obtained by such Measures as increase the Impetus and Quantity of the vital Fluids in the Part to which the Efficacy of the Remedies ought to be determin'd. This Intention is answer'd by diminishing the Resistance of the Vessels in these Parts, and increasing the Velocity of the Circulation in them. The former of these Ends is procured by the Application of warm and soft Fomentations, Cataplasms of a like Nature, or by Cupping-glasses; and the latter by Frictions, and the Applications of Stimulating Substances: In Disorders of this kind, 'tis highly beneficial to foment the Part affected, with Woolen Cloths soak'd in a warm Decoction of Guaiacum, and to make the Steam of kindled Spirit of Wine act first upon it.

This Method, if persisted in for a considerable time, often produces happy Effects, especially when us'd in Conjunction with a Diet of an attenuating Nature, and such as resists an oicous Putrefaction.

When all the Circumstances mention'd in the preceding Paragraph concur, such a penetrating and antiseptic Decoction, by an accelerated Motion of the Fluids, is rapidly carried thro' the Vessels, and the corrupted Matter eliminated from the whole Body, and especially from the Part affected, in consequence of the Determination of the Decoction thither by means of Fomentations, and warm Vapours: But such an obstinate Disorder is not to be remov'd in a few Days; for which Reason such Sweats are for three or four Weeks to be daily excited, a due regard, at the same time, being always had to the Strength of the Patient. The Strength is in the mean time to be supported thro' the Whole of the Cure, by the best Aliments, but such as are of easy Digestion, and not pinguious; for, by this Method, the Patients are generally greatly emaciated, and their whole Fat not only dissolv'd, but also, carried off, by Sweat; and, as the principal Malignity of the Disorder arises from the corrupted medullary Oil, 'tis obvious, that pinguious Substances are to be abstain'd from, lest they should increase the Nature of the Disease: Broths, therefore, prepared of Flesh, and the Fat carefully remov'd, Biscuits, Decoctions of Barley, Oats, Rice, and Millet, Panadas, and ripe Summer Fruits, are most proper in this Case: For Drink, Whey, or Milk diluted with three times the Quantity of Water, may be us'd; but a weak Decoction of Guaiacum, render'd palatable by Raisins or Liquorice, is still better, and more efficacious.

All these Measures, duly taken, often produce the desir'd Effect in such Disorders, even after the Extirpation of the Parts has been judg'd necessary. The Remission of the Symptoms, and the Subsiding of the Tumor, are the Signs, by which we know, that the Cure proceeds well; but 'tis to be observ'd, that sometimes the Fabric of the Bones, by means of these Disorders, degenerates, that thro' the whole Remainder of the Patient's Life there remains a considerable Tumor in the Part affected, tho' the whole Corruption of the medullary Oil is happily remov'd, and such a Tumor is often afterwards attended with no other Inconvenience, than the Deformity of the Part: It has, also, been sometimes observ'd, that, during the Cure, the corrupted Part of the Bone has been happily separated, and, a Suppuration of the soft incumbent Parts happening, extracted, and a successful Cure produc'd.

But, as this Disorder is frequently incident to Children, they cannot always be prevail'd upon to drink a sufficient Quantity of such Decoctions; and, as their tender Bodies are hardly able to bear this Method of exciting Sweats, it is proper once a Week to give an hydragogue Purge; and, on the intermediate Days, gentle Scorbutics. The Part affected is, in the mean time, to be continually wrapt up in penetrating Fomentations prepar'd of Vinegar, Salt, Urine of sound Persons, Rue, and *Alliaria*. Whey is, at the same time, to be us'd for Drink. Thus, says *Van Swieten*, I have known a Cure happily produc'd by the Use of these Measures for some Months: But in such a Case there is almost always a small Perforation spontaneously made in the Integuments, a certain Quantity of Sanies is discharg'd, the Swelling of the Bone gradually subsides, and sometimes the Parts of the corrupted Bone come out, and an hollow Cicatrix remains ever after.

But when this Disorder is become so inveterate, that almost the whole Marrow is corrupted, and the vital Vessels running thro' it totally destroy'd, scarce any happy Effects are to be hoped for from the best Remedies; for the Use of Decoctions will be of no Service, since the Soundness of the Vessels is requisite, in order to convey their medicinal Virtues to these Parts. In such a Situation the worst Consequences are to be

expected, since the corrupted Oil, which daily becomes more malignant, is lodg'd in the Cavity of the Bone: The only remaining Method, therefore, is, to make a Perforation in the Bone, and by that means procure a Discharge of the corrupted Matter; for by so doing we imitate Nature, which, by a Corrosion of the Bone, sometimes throws out all the corrupted Oil; and the best Surgeons furnish us with Instances, in which this Method has succeeded.

If the arterial venous or lymphatic Vessels are obstructed, either thro' a Defect of fresh Fluids, or a Stagnation of those convey'd to them, similar Disorders are produc'd in these Parts, the Order being only inverted and chang'd.

Thus, 'tis obvious from what has been said, what terrible Misfortunes are produc'd, when the medullary Oil becomes stagnant and corrupted in its Vesicles, or in the Interstices of the Bones. But that there may be a due Secretion of the Marrow, and that it may be reabsorb'd, perhaps, partly by the Veins, without being consum'd by the Motions of the Body, a quick Circulation of the vital Juices thro' these Vessels, which convey the Fluids to the Marrow, and carry them thence, is requisite. If, therefore, an Obstruction is, by any Cause, produc'd in the Texture of those Vessels, which are distributed among the Laminae of the Bones, which near the Joints recede from each other, or in those Vessels which run thro' the Periosteum, or the Membrane which externally surrounds the Marrow, the Secretion of the medullary Oil will be disturb'd, and that Part of it, which is already secreted, will become stagnant, since the tender medullary Vesicles, and their Emunctories, are compress'd by the adjacent obstructed and tumid Vessels. The same Effect will, also, be produc'd by an Obstruction of the Vessels of the external Periosteum; for we have already observ'd, that it transmits all the Vessels, which are either convey'd to, or return from, the Cellulae of the Bones, and the Marrow: Thus a Disorder of the external Periosteum may be propagated, not only thro' the whole Substance of the Bone, but, also, thro' the Marrow, only with this Difference, that the Order of the Symptoms is inverted; for when the medullary Oil is first corrupted, being chang'd into an acrid Sanies, it will corrode the Vesicles, in which it is contain'd, and their vascular Texture. Hence it will, in like manner, destroy the Membrane of the Marrow, the internal Periosteum, and the Substance of the Bone; and, at last, having corroded the Bone, it will affect the external Periosteum; and thus the Misfortune will be propagated from the internal to the external Parts: But, when the Disorder begins with an Inflammation of the external Periosteum, it proceeds from the external to the internal Parts; and, first affecting the Bone, at last conveys the Taint to the Substance contain'd in its Cavity; for that a Disorder of the Periosteum forthwith affects the Bone, is sufficiently obvious from what is said under the Article *CAPUT*, and *Aristotle* in *Histor. Animal. Lib. 3. Cap. 13.* observes *φθάνουσι τὰ ὅσα τῶν ὀρέων σκελετοί, "that the Bones become sphacelated when depriv'd of their Membranes."* But, how soon the vital Fabric of the Bone may be destroy'd by a Disorder of the Periosteum, is sufficiently obvious in a Paronychia, in which a violent Inflammation, accompanied with intolerable Pain, happens in the Periosteum of the last Phalanx of the Fingers; for such a Disorder hardly continues for a few Hours, till the whole Phalanx is entirely sphacelated, and at last falls off.

The Diagnostics, therefore, Prognostics, and Cure, of these two Species of Disorders are the same.

For when the Texture of the Vessels of the external Periosteum of the Substance of the Bone, and of the internal Periosteum are first affected, the Disorder will at last reach the medullary Vesicles; and the same Effects will be produc'd, as if the Disorder had proceeded from a Corruption of the medullary Oil; for which Reason the Method of Cure must be the same in both Cases.

Hence 'tis, also, obvious, that there is great Danger according to the different Parts, in which the Cause of the Disorder is lodg'd; and these things premis'd render the Diseases of the Bones better understood.

Tho' the slightest Inflammation in the external Periosteum may produce those Disorders, which otherwise arise from a Corruption of the medullary Oil; yet 'tis obvious, that such an Inflammation may be more easily cur'd, than when the internal Periosteum, and the Membrane surrounding the Marrow, are inflam'd; since in the former Case happier Effects are to be expected from external Medicines; and since, in many Parts of the Body, the Surgeon's Hand may have immediate Access to the Part affected, by making an Incision in the Integuments; in consequence of which, its Separation, Absterision, and Mundification, may be the more easily obtain'd. It is, therefore, a Consideration of great Moment, in what Part of the Body the first Cause of



of the Disorder is lodg'd; and, every other Circumstance being alike, the Danger always bears a direct Proportion to the Depth of the Disease. Thus, from what has been said, we are better qualified not only to know, but, also, to cure, the Disorders incident to the Bones.

1. A slight Inflammation of the Bone is produc'd by an Inflammation of the external Periosteum, the Causes of which are very numerous, as is obvious from what is said under the Article INFLAMMATIO: And its Effects are sufficiently known.

The most slight Disorder, therefore, of the Bones is that which begins in the external Periosteum; which, as we have already observ'd, consists of an Intertexture of numerous Vessels; for which Reason an Inflammation may happen in it from a great Number of Causes specified under the Article INFLAMMATIO; and when an Inflammation is once produc'd, all its Effects will follow; and its various Terminations are to be expected.

2. Such an Inflammation is known by the Symptoms common to a profound or deep Inflammation, the Pain of which is increas'd by being press'd.

As is observ'd under the Article INFLAMMATIO, the principal Signs of an Inflammation are Tumor, Redness, Heat, Pain, and Pulsation, in the Part affected. But, if the external Periosteum alone is inflam'd without the incumbent Parts, 'tis sufficiently obvious, that the Tumor and Redness cannot be perceiv'd; in which Case the Pain, the Heat, and sometimes, also, the Pulsation, are to be accounted the Signs of the Inflammation; but when the Part affected is so press'd, that the Effects of the Pressure reach to the Periosteum, the Pain is augmented; and by this means the Disorder is distinguish'd from an Inflammation of the internal Periosteum, the Membrane surrounding the Marrow, or the Marrow itself; for in such a Case, as we have already observ'd, the Pain is not augmented by external Pressure, because all these Parts are safely defended by the hard Bone. But in those Parts where the Bones are cover'd by strong Muscles, and a large Quantity of Fat, about the Os Femoris, for Instance, the Pain is not augmented, except by a strong Pressure.

3. Many terrible Symptoms are to be expected, unless this Disorder is speedily cured.

For, since all the Vessels conveyed to the Substance of the Bone pass thro' the external Periosteum before their Insertion in the Bone, 'tis obvious how dangerous an Inflammation in this Part must be; for all the Disorders before enumerated may arise from an Inflammation of the Periosteum; and, tho' the Injury done to the Bone is only very slight, yet tedious and long protracted Misfortunes often ensue; for, if the Bone is only corrupted in a small Part, the Periosteum will never grow there again, but the adjacent and incumbent Parts will be irritated by an acrid Sinies, by which means malignant and incurable Ulcers are often produc'd; especially if this happens in those Parts of the Body, where a large Quantity of Flesh covers the Bone, and hinders a safe Incision to the Part affected. Thus, for Instance, when the Periosteum of the Os Femoris, near its Articulation with the Coxæ, is inflamed and suppured; 'tis obvious how difficult the Cure must be, and what a Train of Misfortunes must arise from that Circumstance. Thus, says *Van Swieten*, I know a hopeful Youth, who, after neglecting a deep Inflammation of the Periosteum of the Os Femoris in this Part, which ran between the Interstices of the Muscles, could never have the Part depurated, tho' various Incisions were made in order to procure a Discharge of the Pus. Hence, after an intolerable Degree of Misery protracted for some Years, he at last died of a purulent Tabes. When, therefore, from proper diagnostic Signs, 'tis certain that such a Disorder is present, the most efficacious Remedies are forthwith to be tried, in order to cure the Inflammation by a Resolution. Thus, a Suppuration in these Cases so dangerous, and, which is still more so, a Gangrene, will be prevented.

4. This Disorder is cured like other Inflammations, making it, at the same time, the principal Intention, to carry the peccant Matter from the Bone outwards; which End is obtain'd by Fomentations, and sometimes by Incisions.

In this Case, therefore, all the Measures mention'd under the Article INFLAMMATIO, for the Cure of a resolvable Inflammation, are forthwith to be taken: And as, in this Case, the Corruption of the subjacent Bone is justly to be dreaded, we are by all means to endeavour to draw the Disorder to the external Parts. For this Purpose all those things are to be us'd, which are specified under the Article INFLAMMATIO, as proper for preventing the spreading of that Disorder; a Revulsion,

for Instance, of the Imperus of the Blood to other Parts, by Suction, Friction, Epispastics, and Vesicatories, Fomentations, Baths, Fontanels, Serons, and strong Purgings. Thus the softest Fomentations and Cataplasms are to be Day and Night applied to the Part affected; for, by this means, the external Integuments will be render'd flaccid, and the inflammatory Matter is sometimes deriv'd to that Part, where it does far less Harm, than if the subjacent Bone was affected by it: There are many Instances of deep internal Inflammations thus deriv'd to the external Parts, and the Patients by that means greatly reliev'd; and *Hippocrates*, in the forty-ninth Aphorism of his seventh Section, tells us, "That a Tumor and Redness, appearing on the Breast of Patients labouring under a Quinsy, are lucky Omens, since they are Signs, that the Disorder is carried outwards." Hence, in that Disorder, the most skillful Physicians with so great Success foment the Parts with the softest Fomentations, and even sometimes irritate them by Sinapisms. In the most violent Ischiatic Pains, *Hippocrates* ordered the Parts affected to be soften'd with Baths, Fomentations, and Liniments. And, in his Treatise *de Locis in Homine*, Cap. 9. he directed the peccant Matter to be extracted by means of Cupping-glasses. 'Tis, also, well known, that, in the severest Tooth-ach, the Patient is forthwith greatly reliev'd, when the affected Side of the Face becomes tumid and inflated.

But when, after the unsuccessful Use of these Measures, no Relief is observ'd to be afforded, the only remaining Method is, to make an Incision of the Integuments all at once, as far as the Bone, if the State and Condition of the Bone admit of such a Practice. In an highly acute Paronychia, which generally arises from an Inflammation of the Periosteum of the last Phalanx of the Fingers, or of the Tendon affixed to it, unless an Incision is soon boldly made to the Bone, the Bone is sphacelated, and the Phalanx falls off after intolerable Pains, and sinuous Ulcers, which often prey upon all the adjacent Parts, and render the whole Hand rigid and immoveable. In Ischiatic Pains, after Fomentations, Baths, and Cupping-glasses, had been us'd in vain, all the ancient Physicians ordered the Part affected to be deeply cauteriz'd. The good Effects produc'd by an Incision of the Teguments of the Cranium, after Contusions and Wounds, in order to hinder the Bone from being affected, are specified under the Article CAPUT.

That such an Inflammation is tending to an Abscess, is known, first, by the manifest Signs of a previous Inflammation; secondly, by the Pulsation, Fever, and irregular Horripilation; and thirdly, by an Absence of the Signs of Resolution.

So long as there are any Hopes, that the Inflammation of the external Periosteum may be cured by Resolution, all the Measures directed in the preceding Paragraph are to be tried. But, when the Disorder tends to a Suppuration, other Methods become requisite; and the following Signs inform us, that an Abscess is to be expected.

1. There is some Hope, that a gentle Inflammation may be cured by Resolution; but when all the Symptoms are violent, and continually augmented, the best Termination of the Disorder, which can be expected, is a Suppuration. An intense Pain, a Perception of a violent Heat, and an acute Fever, are the principal Signs, which inform us, that such a profound Inflammation is incapable of Resolution, and tends to an Abscess.

2. When an Inflammation tends to a Suppuration, all its Symptoms are generally augmented. The Pulsation then will be greater, and more distinctly perceiv'd, in the Part affected; a Fever, also, the Concomitant of every considerable Suppuration, will generally be present. But the principal Sign is the irregular Horripilation, which when present, always lays a Foundation for suspecting a Suppuration in the internal Parts. In this Case the Patients are seiz'd with a Sensation like that produc'd by pouring cold Water on the Body, almost in the same manner as happens in the Beginning of intermittent Fevers. But such an Horripilation is immediately remov'd, and afterwards returns in an irregular Manner. Now 'tis certain from practical Observations, that such irregular Horripilations are present, when any considerable Inflammation is converted into a Suppuration.

3. The Signs of a Resolution are explain'd under the Article INFLAMMATIO: But, in such Cases, the Recency of the Disorder, the Slightness of the Pain, the Smallness of the Fever, and a moderate Sense of Heat in the Part affected, lay a Foundation for the Hopes of a Resolution. If, therefore, Symptoms contrary and opposite to these are present, an Abscess, or a Gangrene, is to be dreaded.

But, that an Abscess is actually present, may be known from the Signs of a deep-lodg'd Suppuration, specified under the Articles INFLAMMATIO and ABSCESSUS.

Unless, from previous Signs, 'tis evident that a violent Inflammation has preceded, the Abscess, subsequent to it, is not easily discover'd. In Abscesses lodg'd near the Surface of the Body,



Body, the Softness of the Part, the Fluctuation of the contain'd Pus, and the Whiteness, are sufficiently shewn under the Article SUPPURATIO: But where the Disorder is lodg'd about those Bones, which are cover'd with a large Quantity of Integuments, the latent Abscess is not without the greatest Difficulty to be discover'd; for sometimes only a small Quantity of Pus, collected between the Bone and the Periosteum, produces no sensible Tumor: It, also, frequently happens, that, in such Cases, the Pain does not remit, tho' the Pus is form'd; because, being gradually increas'd in Quantity, unless it corrodes the Periosteum, it makes a Way for itself, between it and the subjacent Bone; and, thus by a slow Dilaceration, separates the Periosteum from the Bone, a Circumstance productive of the most intense and intolerable Pain: 'Tis not, therefore, to be wonder'd at, if such a latent Disorder should sometimes deceive the most skilful, and remain undiscover'd till too late; that is, till the Bone is corrupted, or the Pus, after corroding the Periosteum, is distributed thro' the adjacent Parts, and produces malignant sinuous Ulcers. But when an Abscess is formed about the Spine of the Tibia, it may be very easily discover'd, whereas in other Places we almost only know, that an Abscess is form'd, by the Signs from which we conclude, that an Abscess will be form'd.

Then the Pus, corroding the Periosteum, will soon lay the Bone bare, deprive it of Vessels, and corrupt it. See the Article SUPPURATIO.

In a Suppuration, as is observ'd under the Article INFLAMMATIO, the small Vessels, infarcted with an inflammatory Matter not capable of Resolution, are broken. When, therefore, this happens in a Suppuration of the Periosteum, the vital Communication is destroy'd in that Part of the subjacent Bone, which receiv'd its Juices from the Vessels already destroy'd by the Suppuration, and consequently a Disorder must necessarily happen in the Bone itself. Besides, the Pus, lodg'd in a deep Part, will become gradually more acrid, and corrode the contiguous Surface of the Bone, by which means all the Symptoms will be soon augmented. And the Quantity of the Pus being enlarg'd, unless, in consequence of a Corrosion of the Periosteum, it is dispers'd thro' the adjacent Parts, it will more and more separate the Periosteum from the Bone; and consequently a larger Portion of the Bone will be depriv'd of its Periosteum, and corrupted. Besides all these Disorders, which happen to the subjacent Bone, from a Suppuration of the Periosteum, all those are also to be dreaded, which are produc'd by Pus, remaining long, and becoming corrupted, in a close Place. See the Article SUPPURATIO.

For this Reason the Abscess is to be forthwith opened, the Pus eliminated, and the Ulcer cleans'd. Then the Bone is to be treated in the manner directed under the Article CAPUT, when the Cranium is denudated, or laid bare.

In order to prevent all these Misfortunes, and cure those others already present, there is no other Method left, than boldly to make an Incision in all the Integuments, that thus the Pus may be discharg'd, and an Access procur'd to the Bone affected. It is difficult, and often highly dangerous, to make such a deep Incision. But, as *Celsus*, in *Lib. 7. Cap. 33.* when speaking of the Extirpation of Members, excellently observes, that " 'Tis a Matter of no Moment, whether the only remaining Method of Relief be sufficiently safe or not; " but since in such Cases, not only the Reputation of the Physician, but also, the Life of the Patient, is at Stake, great Prudence and Caution are requisite. Anatomy demonstrates the Situation of the large Vessels, and other Parts, which ought to be avoided. 'Tis however, to be observ'd, that, in different Persons, the Situation of the Vessels is often found very different; for which Reason, in difficult Cases, 'tis more expedient, first, to make an Incision in the Fat and Skin, and then to consider, whether, and in what manner, we may safely proceed farther, than to plunge the Knife at once to the affected Bone; for it often happens, that when an Incision is made in the common Integuments, the Pus, having corroded the Periosteum, and diffusing itself thro' the adjacent Parts, finds a way for its own Discharge, and points out a Method of making a safe Incision into the sinuous Ulcer, and arriving at the Part affected. All the Measures taken in the Cure of an Abscess, specified under the Article SUPPURATIO, are, also, to be taken; and since, in Cases of this kind, the Pus generally makes sinuous Passages for itself, and since the Parts on which it acts are sordid, especially when it has remain'd for a considerable time, mild Detergents are generally injected; especially such as are prepar'd of Aloes, Myrrh, Mastich, and Sarcocolla, with an Addition of Honey, Turpentine, and the Yolk of an Egg: For these not only answer the Intention of cleansing the Ulcer; but, also, prove beneficial to the affected Bone. Besides, all those Measures recommended under the Article CAPUT, in the Cure of the Cranium, when depriv'd of the Periosteum, are to be taken in such Cases, when, after an Abscess, the Bone is depriv'd of the Periosteum.

That such an Inflammation is tending to a Gangrene of the Part, is known, first, from the Signs of the highest Inflammation; secondly, from a Freedom from Pain in the Part affected, without a sufficient Cause; and thirdly, from a dense flow-increasing, and not very painful, Tumor of the incumbent Parts.

Under the Article INFLAMMATIO, when treating of the various Events of an Inflammation, 'tis observ'd, that a Gangrene sometimes succeeds it; and the Signs are describ'd, by which a future Gangrene is foreseen, and a present one known; but, among these Signs, there are some, by which a Gangrene is only discover'd in the external Parts of the Body, which, however, are not sufficient for distinguishing a deep-seated Gangrene of the Periosteum; for the Blisters of the Epidermis, the livid, dark, and black Colour, are not present, till all the Parts are corrupted. But here we treat of those Signs, by which a Gangrene of the Periosteum may be discover'd, tho' the incumbent Parts are not as yet affected with a Gangrene.

1. That a terrible Inflammation is present, may be known from the Violence, and sudden Augmentation, of the Symptoms. Now the principal Signs of an Inflammation of the Periosteum, as we have already observ'd, are Pain, Heat, and a Sense of a deep-seated Pulsation; and, if all these are very violent, and increase suddenly, a Gangrene is justly to be dreaded.

2. How fallacious a Sign is the sudden Removal of Pain in violent Inflammations, is shewn under the Articles INFLAMMATIO and GANGRENA, where the Reasons are, also, given, why, when the Vessels are destroy'd by a violent Inflammation, a Cessation of Pain ensues. The same, therefore, will happen in this Case; when the Inflammation is cur'd by Resolution, the Pain is indeed diminish'd, but slowly and gradually; nor will a good Resolution ever happen after a very violent Inflammation, as is obvious from the Article INFLAMMATIO: When, therefore, without a good and laudable Cause, that is, without the Signs of a Resolution, a sudden Removal of Pain happens after a violent Inflammation, it is a bad Sign, and always indicates, that a Gangrene has succeeded the Inflammation.

3. Then the Taint is propagated thro' the incumbent Parts; and, first, the Panniculus Adiposus is affected; which, by very slight Causes, is often rais'd into a large Tumor. But as all the Symptoms of an Inflammation cease, when a Gangrene is present, the Tumor will not have the Hardness and Resistance observable in a Phlegmon; but will be flaccid, hardly sensible of any Pain, and, in this Case, always indicates, that the Tunica Adiposa is, in like manner, becoming gangrenous. See the Article SUPPURATIO.

That a Gangrene is present, may be known, not only from the Signs enumerated in the preceding Paragraph, but, also, from the pale, cineritious, and livid Colour of the incumbent Parts.

For when those Signs, by which we discover that an Inflammation of the Periosteum tends to a Gangrene, continue, or are increas'd, we know that the latter is either already present, or will soon be so. The chang'd Colour of the Integuments, mention'd under the Article INFLAMMATIO, indicates, that the Gangrene, begun in the Periosteum, is already propagated to the incumbent Parts. Thus *Hippocrates*, in the second Aphorism of his seventh Section, tells us, " That 'tis a bad Sign, when the " Flesh becomes livid, in consequence of a Disorder of the " Bone."

Then the Bone, being laid bare, and deprived of Vessels, and vital Juices, is by the acrid, putrid, and gangrenous Matter, consum'd and render'd carious; and the Contagion is quickly spread to the adjacent Parts.

For, when the Periosteum is corrupted by a Gangrene, the vital Influx and Efflux of the Humours is totally destroy'd in that Part of the Bone, which was covered with the now corrupted Part of the Periosteum; and consequently the external Lamina of the Bone will become mortified: The intermediate Vessels between this and the succeeding Lamina may receive the vital Juices, either from the Vessels of the internal Periosteum, distributed thro' the Substance of the Bone, or from the Vessels running between the Lamina of the Bone, or those rising from the external Periosteum, which is as yet sound: But the mortified Part, incumbent upon these Vessels, will not only soon suffocate and destroy their Life; but the gangrenous Gore of the mortified Parts will, also, corrode all around it, and by that means produce a terrible Caries of the Bone. Now when all the incumbent Parts, together with the Bone itself, are corrupted, a Sphacelus is present, which soon infects the adjacent Parts: Hence the Reason is obvious, why this Disorder spreads so fast.

For this Reason an Incision is forthwith to be made, in the Part affected, to the Bone; and the Wound is to be cleans'd, and



and the Bone cur'd in the manner directed under the Article CAPUT.

The whole Hopes of a Cure consist in this, that, if there is still any Part of the Substance of the Bone alive, this live Part may be separated from the incumbent mortified Parts, and regenerate the lost Substance; or, if all the Vessels dispers'd thro' the whole Thickness of the Bone are already mortified, an Aperture is to be made in the Bone, thro' which the corrupted Marrow may be discharg'd. For 'tis impossible the Marrow should retain a laudable Quality, when the whole Substance of the Bone is mortified. The latent Disorder is, therefore, to be forthwith uncovered, by making an Incision to the Bone; nor is this Practice so barbarous and cruel, as at first it may seem, since all the incumbent Parts are generally gangrenous. *Celsus*, therefore, when in the second Chapter of his eighth Book treating of the Cure of these Disorders, justly advises. "First, to lay bare the Bone, to extirpate the Ulcer, and, if the Disorder of the Bone is larger than the Ulcer, to remove the Flesh, till the Bone appears sound on all Hands." For if, as we have before observ'd, there is sometimes a Necessity for making an Incision in the live Parts, covering the inflamed Periosteum, in order to hinder the Disorder from affecting the Bone, such an Incision will be still more requisite, when a Gangrene and Corruption of the Bone are already present; for there can be no Depuration of the affected Bone, unless there is first a Passage outwards made for that Purpose.

After the Incision, therefore, is made, dry Pledges are to be put between the Lips of the Wound, which, when left till next Day, and becoming tumid with the affluent Humours, will enlarge the Orifice of the Wound, and discover the naked Bone to the Eye: We may, also, know from its chang'd Colour, its Roughness and other Circumstances, what Kind and Degree of Corruption is present. See the Article CAPUT. *Hippocrates*, in the eighth Chapter of his first Book *de Morbis*, seems to have approved of this Method of Cure; for, when he is treating of a Sphacelus of the Brain, he describes a Corruption of the Cranium in these Words: "If the Brain is sphacelated, a Pain seizes principally the anterior Part of the Head, which becomes tumid and livid, the Patient being in the mean time seized with a Fever and Horror. In this Case, an Incision is to be made in the tumid Part; and the Bone, when clean'd, is to be scrap'd." Under the Article CAPUT, the Method is describ'd of making small Perforations in the Cranium, in order to make way for the subjacent small Vessels, that by this means the corrupted Part of the Bone may be the sooner, and the more easily, separated, and the lost Substance regenerated; and 'tis sufficiently obvious, that this Method must prove beneficial in the like Disorders of other Bones. But, that an happy Effect may be expected from this Method, 'tis necessary the whole Substance of the Bone should not be corrupted; but live Vessels, lying under the mortified Parts, are requisite. When, therefore, a Bone laid bare by Incision is found totally corrupted, *Celsus*, in the second Chapter of his eighth Book, orders the mortified Part to be removed with the Knife, or the actual Cautery; and in this he has been follow'd by celebrated Surgeons: But Nature, assisted with laudable Aliments, and proper Remedies, is sometimes capable of doing a great deal in Cases of this Nature.

An Inflammation of the internal Periosteum proceeds from the same Causes, produces the same Effects with respect to the interior Part of the Bone, and terminates like an Inflammation of the external Periosteum, either in an Abscess, or a Gangrene; but is worse by reason of a want of Exhalation. Hence the whole Marrow, and then the whole Bone, are destroy'd by an highly fetid Putrefaction and Caries.

The internal Periosteum is by the Bone more safely defended, than the external Periosteum; for which Reason the former is less frequently subject to Disorders, than the latter. But since the internal Periosteum is vascular, there may be many Causes of an Inflammation in it, and consequently various Terminations of these Inflammations: And as the external Periosteum distributes numberless Vessels thro' the Substance of the Bone, and receives those which return from it, so this seem to hold true in the internal Periosteum. And as the Disorders of the external Periosteum principally affect the Bone, because, when the Vessels are destroy'd, the Circulation of the vital Juices thro' the Substance of the Bone is of course abolish'd, the same will hold true in Disorders of the internal Periosteum; so that the internal Part of the Bone may be corrupted, whilst its external Part is as yet sound. This seems to be confirmed by the Observation of *Mr. Rayfish* already mention'd; for, in the Cavity of the cubital Bone, a bony Pipe was lodg'd so exactly separate from its exterior Substance, as to be dising'd and moved. Hence, as, in the Bones of the Cranium, the Vessels of the Periosteum touch the external Lamina, and those of the Dura Mater the internal Lamina, so the same almost happens in the Lateral Tarsal Bone, and as, in the Diploe between the two

Laminae of the Cranium, these Vessels of the Periosteum and Dura Mater meet, so likewise the same probably happens in the middle of the Bone. *Rayfish*, as he informs us in *Theſaur.* 10. N<sup>o</sup> 176 preserv'd an Os Humeri, in which an osseous spongy Substance, like the Diploe of the Cranium, is found between two Laminae; and he affirms, that he observ'd this in some other Bones. Hence he explains how such a bony Pipe could be separated from the external Part of the Bone. The same Author, in his *Museum Anatom.* and *Theſ.* 8. N<sup>o</sup> 8. Tab. III. Fig. 2, 3, and 4. has a similar Instance for the Confirmation of this Doctrine; for from the Os Tibiae corrupted by an inveterate Caries, by the Force of Nature, there was form'd a Piece of Bone, round and hollow, the Figure of which he has delineated in his Tables. All the Disorders, therefore, which happen to the Bones, in consequence of an Inflammation, Suppuration, or Gangrene of the external Periosteum, may, in like manner, happen, if the internal Periosteum labours under the same Misfortunes. But if we consider, that all the Corruption produced by Disorders of the internal Periosteum is lodg'd in the Cavity of the Bone, and cannot possibly find a way for its Elimination, it will be sufficiently obvious, that Disorders of the internal Periosteum are most to be dreaded; for, by this means, the Marrow will soon be corrupted, and all the Misfortunes before-mention'd produc'd.

Hence 'tis, also, obvious, that whether this Membrane is itself first inflam'd, or afterwards injur'd, by a Contagion communicated from the Marrow before corrupted, the same Disorder, that is, a Caries of the Bone, will soon be produc'd to such a Degree, as hardly ever to admit of a Cure.

For the internal Periosteum covers the concave Surface of the Bones, and is contiguous to the common Membrane, which surrounds the collected medullary Follicles. Hence 'tis sufficiently obvious, that, when the internal Periosteum is inflam'd, the Marrow must soon be affected; for, if this Inflammation terminates in an Abscess, or a Gangrene, 'tis evident, that the Pus or Sanies must corrode the highly tender Fabric of the Marrow; and consequently that it will be soon corrupted, and all the Misfortunes already enumerated produc'd. The Difficulty of the Cure will, also, appear, from what has been hitherto said. Nor do I think, that any one can readily distinguish, whether the Membrane surrounding the Marrow, the Marrow itself, or the internal Periosteum, is inflam'd, since, in either Case, the Signs of a profound Inflammation are present, the Pain is not increas'd by a pretty strong Compression, and the Effects are the same, that is, a Caries of the Bone, and a violent Corruption of the Marrow; for which Reason the same Method of Cure is requisite in either Case.

This Disorder, whilst in a State of Inflammation, may be known; first, from the general Signs of an Inflammation; secondly, from the Depth of the Part affected; thirdly, from an obtuse, fix'd, and continual Pain, which yields to no Medicines, and is not increas'd by Pressure; and, fourthly, from the Increase of such a Pain after muscular Motion.

Since this Disorder is generally discover'd too late, that is, from its bad Effects, those Signs by which it may be discover'd in the Beginning are carefully to be investigat'd, which, however, is not to be done without great Difficulty.

1. Since most of the Signs of an Inflammation can only be observ'd in external Parts of the Body, so the Heat alone, the Pain, and the Fever, the general Concomitant of considerable Inflammations, are to be consider'd as Signs of this Disorder; for the Pulsation can hardly be discover'd in so deep a Part, for this Reason principally, that the Vessels of the internal Periosteum are highly tender.

2. If these Signs of an Inflammation are present, and, at the same time, no Disorder perceiv'd in the external Parts, 'tis greatly to be suspected, that the Disease is lodg'd in the most internal Parts of the Bones.

3. Patients in this Situation generally complain of a Sensation, as if their Bones were split from the internal to the external Parts. The obtuse Pain, indeed, remains fix'd in the same Part; but it, at the same time, highly uneasy, because it can neither be mitigated by changing the Posture of the Part affected, nor by means of any Fomentations or Cataplasms; and is not, at the same time, augmented by a strong Compression. The Reason of this is obvious, from what has been before said.

4. 'Tis also, obvious, from what has been said before, that the medullary Oil can pass from the Cavities of the Bones into the Cavities of the Articulations of the moveable Bones, where it serves to lubricate and anoint the Extremities and Ligaments of the Articulations, and is confirm'd by an Increase of Motion in the Body. Hence, therefore, by such an Increase of Motion, the Fluids, stagnating in the Cavities of the Bones, are put in Motion, and their Motion is render'd brisker, and more accelerated. If, therefore, a Pain arises from an Inflammation of



the internal Periosteum, or of the medullary Membrane, 'tis evident the Pain must be increased by an accelerated Motion of the Humours thro' these Parts. Such an Increase of Pain is always produced in the Patients by this Cause, as, also, by their being heated by a copious Use of Wine, or aromatic Substances.

This Disorder is cured, first, by the general Method used in Inflammations; see the Article INFLAMMATIO: And, secondly, by the Method already proposed, strictly and duly observed, as soon as the Signs of a beginning Resolution appear.

The Cure of an Inflammation by Resolution is, of all others, the best and most desirable, but cannot, in this Case, be obtained, without the greatest Difficulty. For, during the first Days of such a Disorder, Physicians are rarely consulted, whilst the obtuse and deep-seated Pain is either entirely neglected, or treated with external Remedies; which, in the very Nature of the Thing, can hardly be expected to do any Service. But, how much the Recency of the Disorder contributes to the Cure of an Inflammation by Resolution, is obvious from the Article INFLAMMATIO. Besides, Fomentations, Frictions, and Baths, so useful in other Inflammations, cannot, in this, reach the Part affected. Hence, in this Case, nothing remains to be done, but by Venesection, and anaphlogistic Purgatives, to diminish the Imperius and Quantity of the arterial Fluid; and to use a slender Diet, in Conjunction with attenuating and diluting Medicines.

Secondly, If, after the Use of these Medicines, the Symptoms are mitigated, but not entirely removed, the Physician is not to give over his Efforts, but to use his utmost Skill, in order to make a perfect Cure; for the smallest Disorder left in this Part often afterwards lays a Foundation for the worst Misfortunes of an incurable Nature. Though, therefore, the Inflammation is allay'd, yet 'tis still expedient to use the Method before recommended, that is, filling the Body with penetrating Decoctions, and taking the other Measures there prescribed; that, by this means, all Remains of the former Disease may be removed. But since, by this Method of filling the Body with Decoctions of the Woods, an artificial Fever is raised, 'tis sufficiently obvious, that it cannot be attempted, till the Inflammation is cured; otherwise all the Symptoms would be render'd worse.

But if a Suppuration, or Gangrene, should happen in this Part, and be known, not only by the palpable Signs of a previous Inflammation, but, also, by the deep-seated, fixed, and obtuse Pain; then the Method by Decoctions is the only Thing capable of producing a Cure.

But when the Medicines proper for the Cure of an Inflammation by Resolution have not been used at all, or too late; or when the Inflammation is so violent, that it cannot be resolv'd, tho' all these Medicines have been seasonably applied; we must then expect other Terminations of the Inflammation, that is, a Suppuration, or a Gangrene; for, since there is no Method for the Discharge of the Pus, or the gangrenous Gore collected here, 'tis sufficiently obvious, what terrible Misfortunes must be produced by that means. That these Terminations of an Inflammation are present, may be known from the Absence of the Signs of a Resolution, and the fix'd, deep-seated, and obtuse Pain. In this Case, the only Hope of Relief consists in the Method before recommended, that is, filling the Body with Decoctions, and, by that means, washing off all the corrupted Matter. But if the Disorder cannot be cured by these Measures, and if an Incision can be safely made to the Bone, it is to be perforated to its Cavity, that thus the corrupted Sanies may be eliminated. That this Method has been sometimes used with great Success, is sufficiently obvious from what has been already said. A Salivation, excited by means of Quicksilver, has often been tried in Cases of this Nature; but, says *Van Swieten*, I never saw it prove effectual. Hence 'tis obvious, that no good Effects can be produced by any other Remedies.

For then the internal Part of the Bone becoming putrefied, tumefied, inflamed, and carious in all its Substance, the external Periosteum is inflamed, distended by the Tumor of the Bone, and corroded by the acrid Matter; and the incumbent Parts, being corrupted by the slow-spreading Contagion, become spongy, tumid, and painful, till the whole Member is at last destroy'd. In such a Situation, Extirpation is the only Method of Relief.

For the Pus, retain'd in a warm and close Place, will become attenuated, putrid, and acrid. See the Article SUPPURATIO. And, if a gangrenous Gore is present, it will still sooner degenerate, and assume a malignant Quality. The medullary Oil discharged, in consequence of its having corroded its containing Vesicles, will become stagnant, and acquire a rancid Acrimony, of an highly malignant Nature. Thus the whole Cavity of the Bone will soon be fill'd with an highly putrid and acrid Sanies.

The concave Surface of the Bone will, therefore, be corroded by this acrid Ichor; the Vessels distributed between the Laminae of the Bones will be inflamed; the Laminae, before contiguous, will be separated; a Tumor will happen in the Substance of the Bone; and, at last, all the Parts will be corroded. Whilst these Changes are happening, fresh Pains arise; for all the Parts contain'd in the Cavity of the Bone being corrupted, the former Pain often ceases, or, at least, remains very obtruse: But when the external Periosteum, which is highly sensible, begins to be distended by the Tumor of the Bone, or corroded by the acrid Sanies penetrating to it, the Patient is afflicted with the most intense and violent Pains. Then the soft Parts, incumbent on the Bone, begin to be affected and corrupted by the slow-spreading Contagion; and in these Parts, especially in the Membrana Adiposa, arise Tumors, sufficiently large, but spongy, and yielding to the Touch. Thus the Disorder is gradually propagated to the external Parts, the Whole of which become corrupted by degrees, till at last, the whole Member is destroy'd; for all the Parts, together with the Bone, being mortified, a true Sphacelus is present, which can only be cured by Extirpation. In malignant Gangrenes, and violent Comulsions, tho' many of the Parts are destroy'd, yet there is still some Hope, that there are, under the mortified Parts, live Vessels; by means of which, the corrupted Parts may be separated, and the lost Substance regenerated. But, in this Case, the subjacent Parts are first corrupted.

A Venereal or Scorbatic Quality of the Humours, or their Tendency to that Disorder call'd the Rickets, are frequently the Causes of this Disorder. Hence we may understand what Gummata, Tophi, Nodes, Exostoses, Abscesses, a Caries, and a Spina Ventosa of the Bones are.

Tho' an Inflammation of the internal Periosteum, of the Membrane surrounding the Marrow, and of the Follicles containing the medullary Oil, may arise from almost all the Causes capable of producing an Inflammation in other Parts of the Body; yet, since these Parts are so safely defended, an Inflammation is rarely produced in them by the common Causes. But 'tis observable, that, in some Disorders, a Cacochymy generated in the Blood is deposited in the Bones, and corrupts their Fabric. Of this Kind is

*A Venereal Quality of the Blood.* 'Tis certain, from frequent Observations, that, in this Disorder, the subtle Contagion, mix'd with the Blood, is afterwards deposited in various Parts of the Body, where it gradually corrodes all around it; and is, at the same time, posses'd of such a Quality, as to corrupt the sound Humours, and so transform them into its own Nature, that, by their means, the like Misfortunes may not only be produced in the Neighbourhood of the Part affected, but, also, in remote Parts; for it is certain, that the Venereal Poison surprisingly insinuates itself into the oleous and mucous Parts of the human Body: 'Tis not, therefore, to be wonder'd at, if it insinuates itself into the pinguious Oil, whether dispersed thro' the Substance of the Bones, or collected in their Cavities; and then, by a generally slow Corrosion, corrupts all the Parts. The worst, and most malignant Disorders of the Bones are frequently observed to arise from a Lues Venerea; especially when it is inveterate, and has taken deep Roots; for the Bones are rarely affected by this Disorder, when recent. But, when the Disease is of long standing, those intolerable and of sinare Pains arise, which often yield to no Remedies; but, becoming milder by a Salivation, or Decoctions of the Woods, afterwards return. The Marrow is, also, affected by the Lues Venerea; and 'tis certain from numberless well-vouch'd Observations, that this Disease often produces very terrible Disorders of the Bones. Thus *Van Swieten* informs us, that he saw the Ribs, the Sternum, and the Clavicles, consumed by a Lues Venerea, the Vertebrae of the Neck corroded by a Venereal Ulcer of the Pharynx, and the outward Plate of the Right Bregma render'd so carious by a Lues Venerea, as to fall off. These Observations are sufficient to prove, that a Lues Venerea is frequently the Cause of Disorders in the Bones.

*As for a Scorbatic Quality of the Humours;* the first Signs of a Scurvy generally appear about the Gums and Teeth: And 'tis well known, not only that the Teeth, being render'd carious by this Disorder, fall out by Pieces, but, also, that the bony Part of the Maxilla is greatly affected by it; and the obstinate Ulcers of the Legs, so frequent in scorbatic Patients, are often accompanied with a Caries of the Bones. In the most malignant Species of this Disorder, all the Bones have been found carious; an Instance of which we have in *Mem. de l'Acad. des Sciences, An. 1699.* And *Petit*, in his *Traité des Maladies des Os, Tom. 2.* informs us, that in a great Number of Soldiers, who died of a Scurvy, he found the Periosteum, which was in a great many Parts corrupted entirely, separated from the Bones, and under it a dark-colour'd or blackish Lymph, of an intolerably fetid Smell. Hence 'tis obvious, how unfriendly a Scurvy, especially of the inveterate Kind, is to the Bones; for it has, then, many Symptoms in common with a Lues Venerea, and especially nocturnal Pains.

*As for a Tendency of the Humours to that Disorder call'd the Rickets;* 'tis obvious that this Disorder has a great Affinity with the



the Scurvy, and often lays a Foundation for suspecting an Admixture of a Venereal Taint; for it most frequently seizes Children procreated by Parents infected with a Venereal Taint, or who have been so unfortunate as to have frequent Gonorrhœas. But we observe, that, in this Disorder, the Bones are severely affected; for the Teeth become black, and, growing carious, fall out; the Epiphyses become protuberant, and are, by a slight Force, separated from the Bones to which they adhered: And, in the highest Degree of the Rickets, a Caries and Spina Ventosa of the Bones are frequently observed.

From what has been said, we are the better enabled to understand the following Diseases of the Bones; that is,

*Gummata*, which are Tumors arising out of the Substance of the Bones, of such a tenacious and soft Nature, as to yield to the Fingers, almost like the Gum of Trees, when soften'd by the Rays of the Sun, or before it has acquired its perfect Hardness. In Patients labouring under a Lues Venerea, such Tumors are frequently observed, not only on the Head, but, also, on the middle and most solid Parts of the larger Bones. Now these Tumors seem to be produced, when the Vessels, running between the bony Laminae, being either obstructed or inflamed, are dilated, and by that means raise the incumbent Laminae. Perhaps, also, in such Tumors, the Substance of the Bone, properly so call'd, which is naturally hard, degenerates into a preternatural and morbid Softness. There are, in practical Authors, surprising Instances, in which, from latent Causes, not only particular Parts, but, also, the Whole, of the Bones have been render'd soft. From such Observations, 'tis sufficiently obvious, that in certain Disorders, the Bones become soft; and it has, at the same time, been frequently observed, that the Bones, thus soften'd in particular Parts, have there become tumid. Hence appears the Origin of the Tumors call'd *Gummata*.

'Tis, also, obvious, from what has been said, that such a Softness of the Bones sometimes succeeds Abscesses of the adjacent Parts; and that sometimes the Origin of this Disorder is lodged in the Substance of the Bones, and especially when they are affected with a Lues Venerea. Such *Gummata* have, however, been sometimes observed on the Bones, when no adequate Cause could be discover'd. Perhaps the acid Cacochymy of the Blood may sometimes prove the Cause of a Softness of the Bones. Thus in weak Children, whose Aliments are, for the most part, of the ascetic Kind, and whose Vessels and Viscera are, at the same time, so weak, that they cannot subdue the Quality of the Chyle generated from their Aliments, the Rickets, and a preternatural Flexibility of the Bones, are so frequently produced. *Ruyfch*, in his *Theaur.* 4. N<sup>o</sup> 38. informs us, that when the Liquor, in which he preserved a Fœtus, was made too acid, the Ribs were so soften'd, that they could not only be bended any way, but even ty'd in a Knot, like a Rope.

*As for Tophi and Nodes*; when Tumors of the Bone arise, harder than *Gummata*, but softer than the Substance of the Bone, they are call'd Nodes, or Tophi. The celebrated *Boerhaave* used to compare Tophi to the Horns of Calves, when as yet under the Skin; and Nodes to these Horns, after they appear'd without the Skin, but had not, as yet, acquired the Hardness of an Horn. Hence 'tis obvious, that Nodes and Tophi only differ from *Gummata* in their different Degrees of Firmness.

*As for Exostoses*; these are Tumors which equal, or, perhaps, surpass, the Bone in Hardness. Sometimes the whole Bone is enlarged into an Exostosis, as is sometimes observable in the Bones of the Carpus and Metacarpus, those of the Tarsus and Metatarsus, and the Phalanges of the Fingers. In the larger Bones, this very rarely happens, since only particular Parts of them are generally raised into Exostoses. The Nutrition and Increase of the Bones, and the Restitution of the lost Substance of the Bones, considered under the Articles CAPUT and FRACTURA, sufficiently prove, that the hard Substance of the Bone may be restored by means of laudable Humours convey'd in a due Quantity, and with a proper Impetus, thro' sound Vessels. Besides, in the Cure of Fractures, it is often observed, especially in young Patients, that the Callus generated is raised above the Surface of the Bone, and often remains an hard and bony Tumor, during the whole Life of the Patient. But that Substance which unites and consolidates fractured Bones, and restores the Substance lost, is first soft, and only gradually acquires a bony Hardness. See the Article VULNUS. If therefore, by any Cause, those Vessels are dilated, which convey the Matter by which the Bone is nourished, and the lost Substance repair'd, there may be an Enlargement of the Bulk, and a Tumor produced in the Bone. And since between the Laminae of various Strata, of which the large Bones consist, 'tis highly probable, that such Vessels are distributed, as is observed under the Article CAPUT, so the Bulk of the Bone may be enlarged in these Interstices, and the Laminae of the Bone separated farther from each other; in consequence of which, the Thickness of the Bone will, in these Parts, be augmented.

Now, according as these Tumors protuberate to the external or internal Parts, according as they affect different Parts of the

Bone, according to the Diversity of the adjacent Parts injured by these Tumors, and according to their different Bulk and Figure; so various, and often surprising, Misfortunes are produced by them, as we learn from practical Observations.

*Ruyfch*, in *Theaur.* 10. N<sup>o</sup> 178. Tab. II. Fig. 4. and 5. informs us, that, by means of a Saw, he longitudinally divided a Part of the Os Tibiæ, affected with an Exostosis; upon which he found, that an hollow Exostosis had arisen from the internal Surface of the Bone, and render'd the Cavity, in which the Marrow was contain'd, narrower. Hence 'tis obvious what Misfortunes might arise from such an Exostosis; since, by its means, the Marrow might be compress'd and injur'd; and consequently all the Symptoms arising from that Circumstance, and already enumerated, were to be dreaded. The Exostoses arising in the middle and most solid Part of the large Bones are generally pretty hard in all their Parts; but such as appear near the Joints, have sometimes been found only with their external Parts hard; and, under this hard Crust, surprising Degeneracies of the soft Parts lodged between the receding bony Laminae, into fungous Flesh, Pus, Sanies, and Mucus, have been observed. See *Petit Maladies des Os*, Tom. 2. If the interior Lamina of the Cranium is raised into such a Tumor, 'tis sufficiently obvious, that, in consequence of the Compression of the Brain, Epilepsies, Palsies, and Apoplexies, are to be dreaded. But, as Exostoses arising on the external Surface of the Bone slowly distend the incumbent Periosteum, highly intense, and sometimes long-protracted, Pains are produced by that means; which, however, cease sooner, if the Tumors are of an acute Figure.

Such Tumors of the Bones sometimes succeed external Injuries; and are, also, observed to proceed from internal Causes; but from none more frequently, than from a Lues Venerea. In a malignant Scurvy, the Ulcers of the Legs, so often incurable by all Remedies, are frequently accompanied with a Caries, and sometimes with Exostoses of the Bones. Exostoses arising from external Causes are generally pretty mild, tho' not to be cured without great Difficulty; whereas those arising from internal Causes sometimes disappear, or, at least, are much diminished, when the Disorder producing them is removed, as is frequently observed in Venereal Exostoses. 'Tis, also, certain, that Exostoses may be produced by slight Contusions, especially in those Parts where the Bones are only cover'd with a few Integuments. Hence such Tumors are so frequently observed in the Spine of the Os Tibiæ. And as this Part is much obnoxious to external Injuries, *Petit*, in his *Traité des Maladies des Os*, informs us, that there are few Men who have not some Asperities in the Surface of that Bone. What surprising Exostoses may be produced by strong Contusions, is obvious from a Case recorded in *Mem. de l'Acad. des Sciences*, An. 1720.

Exostoses produced by external Injuries are rarely cured, unless they can be removed by a chyrurgical Operation; but, as they are generally of a pretty mild Nature, this Method, which is always difficult, and sometimes dangerous, is not advisable, unless by their Bulk, Figure, or Situation, they are productive of considerable Inconveniences.

But Exostoses arising from internal Causes are often cured, or, at least, much diminished, when these Causes are removed. But if, after the Cure of these Disorders, the Exostoses should remain, as is sometimes observable after the Cure of a Lues Venerea, an Incision is to be made in the Integuments, and the Exostoses removed either by the Knife, or the actual Cautery, if any terrible Misfortune is to be dreaded from suffering them to remain. Yet, says *Van Swaeten*, I have seen many Cases, in which, after the Cure of a Lues Venerea, the Exostoses have remain'd for many Years, without any farther Disadvantage than the Deformity of the Part. The most commodious Method of removing Exostoses is found in *Petit's Traité des Maladies des Os*, Tom. 2.

*As for Abscesses*; under the Article SUPPURATIO is described what is meant by an Abscess of the soft Parts; and 'tis obvious, from what has been already said, that the Bones are subject to similar Misfortunes. 'Tis, also, certain from practical Observations, that not only in the cellular Parts, near the Joints of the Bones, but, also, in the middle Cavities of the large Bones, Inflammations have degenerated into Abscesses. Besides, an Abscess is said to happen in the Substance of the Bone, when one or more of those Laminae, by the Union of which the Bone is form'd, becoming mortified and corrupted, are disengaged and separated from the subjacent live Vessels, and a Substance like the separated Laminae regenerated; and, on this regenerated Part, a new Periosteum is form'd, by which means the Substance lost is restored. See the Article CAPUT, where 'tis said, that *Hippocrates*, in Wounds of the Head, observed, that a denuded Bone, or the Remains of a Weapon left in the Bone, were generally separated from that Part of the Bone which was still furnished with Life and Blood. We may, also, refer to Abscesses of the Bones, those surprising Observations of *Ruyfch*; since in the middle Cavities of the large Bones a round bony Pipe was found, separate from the rest of the Bone.

*As for a Caries of the Bones*; this is a Disorder far more terrible, and entirely distinct from an Abscess of the Bones; for,



In an Abscess of the Bone, it still retains its Cohesion, and is generally separated in the Form of a Lamina; whereas, in a Caries, the Substance of the Bone is so corrupted and corroded, that it moulders away into a kind of Powder; so that a Caries indicates a far greater Corruption of the Bone, and a far greater Difficulty of Cure. How a Caries of a Bone, cover'd with Flesh and Integuments, may be known, we shall hereafter specify: But when the Bone may be either seen with the Eyes, or touch'd with a Probe, the Caries is easily discover'd. *Celsus*, in the second Chapter of his eighth Book, informs us, "That we may soon, by means of a Probe, discover a Caries of the Bone; since the Probe will penetrate farther, or less, according as the Caries is deeper, or superficial;" for the carious Part of a Bone has scarce any Solidity, but yields to the Probe; and, when the Probe comes to the sound Part of the Bone, a Resistance is perceived. Hence *Celsus*, in the same Part, after, for the Cure of these Disorders, he has order'd the Bones to be rasp'd, adds; "But we must rasp them no longer, than till we have arriv'd at a white or solid Part of the Bone; for 'tis certain, that the Blackness is removed, when we come to a white, and the Caries, when we come to a solid Part of the Bone."

As for a *Spina Ventosa*, which is the worst Species of a Caries of the Bones; since the Marrow, corrupted by an internal Cause, corrodes them, we have already treated of it.

Hence we know why a carious Bone so variously changes its Colour, from a whitish-blue, to a pinguious white, a yellow, a cineritious, a livid, and a black Colour, and what Degree of Corruption each of these Colours denotes.

When, under the Article *CAPUT*, those Signs are considered, by which we know that the Cranium is affected, it is observed, that, in live Persons, the Colour of sound Bones is somewhat reddish or bluish; and that the first Sign of a vitiated Bone is a Change from this Colour to a white, a yellow, a dark, and at last, a black Colour. The same, also, holds true in the other Bones; and generally the greater Degree of Corruption is indicated, the more they recede from their natural Colour. The first Change of Colour is, when the Bone becomes white, which, as it were, denotes a beginning Mortification in the Bone. Hence, when small Perforations are made in a Cranium thus affected, the first Sign, that the Cure succeeds happily, is, when the white Surface of the Bone begins to assume a reddish Colour. But since we have already demonstrated, that the medullary Oil passes thro' Pores of the Laminae mutually applied to each other, to the external Surface of the Bone, where it is, perhaps, received by the small Veins of the Periosteum, and mix'd with the Blood; 'tis sufficiently obvious, that when the vital Fabric of the Bone is destroy'd, the Oil convey'd thither must be accumulated, become stagnant, and corrupted. For this Reason the Bone will become pinguious and yellow, as *Celsus*, in the second Chapter of his eighth Book, excellently observes, when speaking of the Disorders of the Bones. "The vitiated Part, says he, generally first becomes pinguious, and then either black, or carious." In proportion as the Disorder increases, the Colour becomes cineritious, livid, and at last black, which indicates a perfect Mortification, and a violent Corruption of the Bone. This successive Change of Colour is, also, observed in the Teeth, when they begin to be corrupted; for, first, they become pinguious, then yellow, then dark-colour'd, and, last of all, black; when, becoming carious, they fall out by Pieces.

From what has been said, 'tis obvious, why a carious Bone is unequal, rough, spongy, friable, soft, and easily broken; for the external and internal Arteries no longer compress the Laminae of the Bone.

'Tis obvious, from what has been already said, that the Bones consist of Laminae mutually applied to each other; and that between these Laminae Vessels are distributed, which convey the vital Humours, requisite to the Life and Nourishment of the Bones; and especially in those Parts of the Bones, where large Interstices are left between these Laminae. The small Arteries, therefore, lying between the exterior Laminae of the Bone, and the next succeeding one, when in their Diastole, endeavour, almost in every Point, to raise the external Laminae; but the small Arteries dispersed thro' the Periosteum, when dilated by an equal, or perhaps a greater Force, resist the Elevation of this Lamina. When, therefore, by whatever Cause, the Periosteum is corrupted, the Action of the Arteries running between the Laminae of the Bone will prevail, and the external Lamina will be elevated; and 'tis sufficiently obvious, that the same may happen in all the Interstices between the Laminae of the Bone. Perhaps the Action of these small Arteries may appear too inconsiderable for elevating an hard Lamina of Bone, and separating it from its subjacent Lamina; but if we consider, that these small Arteries, almost in all Points of such a Lamina, repeat their Pulsations four thousand times in an Hour, it will not, perhaps, appear so surprizing, that to small a Force, so often applied, should produce such an Effect. When, in Wounds of the Head, the Surface of the

Cranium, divested of the Pericranium, is disorder'd by the Access of the Air, or the Application of pinguious Substances, the corrupted Lamina has often, in a few Days, been separated by the Force of these Arteries. See the Article *CAPUT*.

The Reason, therefore, appears, why the internal Arteries, that is, those which run between the Laminae, elevate these Laminae externally, as soon as the Pressure of those Arteries ceases, which were capable of acting upon the external Surface of these Laminae. For this Reason, the Surface of the corrupted Bone is rough, and, in consequence of the Laminae receding from each other, becomes spongy, more friable, and loses a great deal of its natural Solidity; for, in sound Bones, the firmest Part is that in which the bony Laminae are most contiguous to each other; which is generally in the middle of the large Bones; and, on the contrary, the Bones are far more spongy, soft, and easily broken, near their Extremities, where the bony Laminae are at great Distances from each other. But the Friability of carious Bones is much augmented, because the Humours, becoming stagnant and acrid, corrode the Substance of the Bone; and this Effect is principally produced by the corrupted medullary Oil. Besides, the Cohesion of the Bones seems to depend upon the Interposition of the Oil, which, like a kind of Glew, unites their terrestrial Parts; for, as we before observed, the Bones become highly brittle, when, by means of an open Fire, their whole Oil is extracted; and such Bones, render'd thus friable by long Calcination, again cohere firmly, when immersed in Oil. Since, therefore, the attenuated medullary Oil is consumed by Putrefaction, and the Bone, at the same time, corroded by acrid Humours, the Reason is obvious, why carious Bones are so friable as to moulder into Dust upon the slightest Touch of a Probe.

Hence, also, the Reason is plain, why from such a Bone a highly fetid Smell, like that of rancid Bacon, is exhal'd.

This fetid Smell is so strong, that skilful Surgeons are able, from it, to tell that there is a Caries of the Bone below the Ulcer. 'Tis, therefore, expedient to know this Smell, which cannot, in the very Nature of the Thing, be described by Words, but approaches to that of corrupted and rancid Bacon. When the Caries of the Bone reaches to the Marrow, this fetid Smell may be easily accounted for; but 'tis, also, perceived, when the Corruption of the Bone is only superficial. We have already observed, that the medullary Oil passes thro' the Pores of the Laminae, and is carried in their Interstices to the external Surface of the Bone: Though, therefore, the exterior Laminae should only be carious, the medullary Oil, convey'd thither, will become stagnant, corrupted, and produce the same fetid Smell.

From what has been said, we also understand, why in an ulcerous Part, by means of a subjacent Caries of the Bone, the superincumbent Flesh is soft, flaccid, fungous, inflated, and tumid, and the Lips of the Ulcer inverted; the Sanies clear, tubile, hardly at all glutinous, fetid, and full of small black Scales; as, also, why the Disorder returns, without any apparent Cause; and the Ulcer proves obstinate against the best Medicines for other Ulcers.

We now come to consider these Symptoms which generally accompany a Caries of the Bone, the Presence of which often discovers such a latent Disorder to the skilful Surgeon.

*Why in an ulcerous Part.* When, in consequence of a previous Disorder, and Corruption of the Bone, the incumbent Parts are affected and exulcerated, they are generally corroded by degrees, and raised into a soft and flaccid Tumor, as is always observed by Surgeons; and, in a particular manner, appears in the Spina Ventosa, which seems to have received its Name from this Circumstance; for the Putrefaction of the subjacent Bone diffuses a malignant Exhalation thro' all the adjacent Parts; by which means the Membrana Adiposa, naturally so prone to become tumid, is soon inflated. Nor is it, in this Case, tumid with an inflammatory Hardness, but soft, lax, and, as it were, fluctuating under the Fingers. For this Reason, when skilful Surgeons examine old Ulcers, they always search with their Fingers, whether all the adjacent Parts appear firm and sound; for the incumbent Parts do not adhere to the corrupted Bone, nor can they, by any means, be made to grow to it, till all the corrupted Part is first removed. When the Teeth become carious, the Gums are separated from them, and never after grow to them. We have already observed, that, in Patients who died of a malignant Scurvy, the Periosteum is found not to adhere to the Bones: Hence, also, in Wounds of the Head, we know that the Cranium is affected, if, about the seventh Day, the Flesh is separated from it, a Pain is left, and the Pus is thin and fetid, which discovers the Malignity of the Wound. See the Article *CAPUT*. Perhaps, also, the elastic Matter, for the most part generated by the Putrefaction, increases the Tumor of the incumbent Parts.

*Why the Lips of the Ulcer are inverted.* The Lips of a Wound are re-erected, in a sound and robust Body, by a rising of the Membrana Adiposa, when unconfined by the Skin. By the same Cause, therefore, the Lips of such an Ulcer will be inverted by the



the inflated *Membrana Adiposa*. But in a Wound, the Lips are of a live red Colour; whereas in such Ulcers, they are sordid, pale, and often livid; and, as *Hippocrates* justly observed, with respect to Wounds of the Head, accompanied with a Corruption of the Bone, the Lips resemble Flesh macerated with Salt.

*Why the Sanies is clear and subtle.* Under the Article *SUPPURATIO*, 'tis observed, that *Galen* and *Hippocrates*, sometimes, used the Word Putrefaction, in order to denote a Suppuration; but they accurately distinguished a Suppuration from a Putrefaction, properly so call'd; since the former was a Sign that Nature was Conqueror, and the latter, that she was conquered. Hence *Galen* justly concluded, that a Suppuration was not simply Putrefaction, but had something of Concoction in it; and that by the remaining Power of the Vessels, those Humours which would otherwise become putrid, were converted into Pus. And the same Author adds, that in Ulcers there is generated a Liquor, more or less degenerating from the Nature of good Pus, according as the concoctive Powers are stronger or weaker, and according as the Matter to be converted into Pus, is more or less obstinate. Since, therefore, in an Ulcer, attended with a Caries of the Bone, there is a malignant Putrefaction, produced by a Corruption of the medullary Oil, and since the incumbent and adjacent Parts are flaccid, soft, inflated, and often almost half gangrenous, it is obvious, that the Matter to be converted into Pus is highly obstinate, and the concoctive Powers, at the same time, excessively weak. It is not therefore to be wonder'd at, if instead of a laudable Pus generated by the superior Force of Nature, which is white, thick, smooth, equal, and inodorous, there should here be formed a Sanies which is thin, fetid, sometimes dark-colour'd, and highly acrid. For the most part the black Scales of the corrupted Bone are discharged along with this Sanies, which Surgeons justly take for the most infallible Sign of a carious Bone: For this Reason, in Ulcers of long standing, they always carefully view the Plaiters and Pledgers, upon renewing the Dressings; and if on these there is any Blackness, and if they have a fetid Smell, a Caries of the Bone is justly suspected.

*As for the Return of the Disorder, without any apparent Cause;* unless the affected Bone is previously depurated, the Fomes of the Disorder always remains, though the Ulcer should be healed up; for which Reason it will always return. Nor is a laudable and firm Cicatrix ever formed upon such Ulcers, since it is always soft, elevated, and infirm; and the Place will afterwards, sooner or later, become open. When corrupted Teeth produce a Caries in their Sockets, there is often a sudden Inflammation and Suppuration produced in the Gums. Upon the opening of the Abscess, a fetid Pus is discharged, and the Disorder seems cured; but it generally recurs in a few Months, unless by an Extirpation of the Tooth, and a sufficient Depuration of the Part affected, a thorough Cure is made. Thus *Van Swieten* informs us, that he knew a Boy, who, after the Cure of the Small-pox, was seized with Tubercles full of Pus, in various Parts of the Body, and in the Forehead with an obstinate Ulcer, which frequently appeared to be healed, by means of drying Medicines; but soon after broke out afresh, till about two Years after, the corrupted Part of the Bone being separated, the Ulcer was perfectly cured in a few Days.

*As for the rebellious and obstinate Nature of the Ulcer.* No Ulcer can be perfectly cured, till it is reduced to the State and Condition of a clean and pure Wound; for any mortified or corrupted Part remaining in the Ulcer, is an heterogeneous Body, which will hinder the Union of the separated Parts, so long as it remains there. Under the Article *CAPUT*, the various Methods, and the most efficacious Remedies for removing such Sordes are specified. Surgeons often find, that in seemingly inconsiderable Ulcers, a long-continued Application of such Medicines, produce no happy Effects; in which Cases they always find that the Bone is carious. *Hippocrates*, in *Aph. 45. of Sect. 6.* informs us, *That if Ulcers continue a Year, or longer, they must of Necessity affect the Bone; some Part of which being separated, will leave deep and hollow Scars.* Sometimes these Disorders of the Bones are so obstinate as to yield to no Medicines at all: And *Hippocrates*, in his Treatise *de Fracturis*, tells us, that when the Os Calcis is corrupted, the Disorder cannot be cured.

From what has been said we, also, understand, why a Caries of the Bone, arising from an external Cause, is most easily cured: Why that arising from an internal Cause is not to be cured without Difficulty: Why a Caries arising from a Lues Venerea, is still more difficult to be cured: And why that arising from a Spina Ventosa is, of all others, the most difficult to be cured.

The Cure of a Caries is easier, or more difficult, according to the various Causes which produce it; for when a Caries arises from an external Cause, a Contusion, for Instance, or a Wound, there is only some Part of the Bone thus corrupted; and the sound Humours, convey'd, by means of entire Vessels, through the remaining Substance of the Bone, will be able to separate the corrupted Part, and restore the lost Substance: Hence, in Wounds of the Head, a Caries of the Cranium is often soon

and successfully cured; provided the Patient is found in every other respect: But when, in consequence of a morbid Caco-chymy, the Humours flowing through the Substance of the Bone, are become so acrimonious as to corrode it, it is sufficiently obvious, that the Cure must be difficult; since, after the carious Part is cleansed, the same Cause which first produced it often still remains. The more difficult it is to subdue and correct this Caco-chymy, the more difficult the Cure must of course be. Since, therefore, in a Lues Venerea, the Contagion, when once affecting the Bones, is not without great Difficulty to be removed, and since, after the Cures with Mercury, and the Decoctions of the Woods, the latent Disorder often appears afresh, with equal Malignity, some Months after, it is sufficiently obvious, that the Caries, arising from this Cause, is not to be cured without the greatest Difficulty. In a Spina Ventosa, as we have before observed, a Caries of the Bone arises from a previous Corruption of the medullary Oil; for which Reason it hardly appears, till the whole Substance of the Bone is corroded: There are, therefore, no vital Parts under such a Caries, capable of separating the corrupted, and restoring the lost Parts; and the only remaining Method of Cure consists in an artificial Separation of a large Portion of the corrupted Bone. After some Months, or even Years, the corrupted Bone has been sometimes separated from the sound, as is certain from chirurgical Observations. However, it is certain, that the Cure of such a Caries is, of all others, the most difficult.

From what has been said we, also, understand why, in the solid Parts of the Bones, a Caries is bad; in their spongy Parts, worse; and in their Joints, worst of all; the first of these flow, the second quickly spreading, and the third still more so: Why in Children, a Caries spreads quickly, and is with Difficulty cured: And why a Spina Ventosa generally affects a considerable Number of Places, either at one and the same time, or successively.

It is certain, from what has been already said, that the Middle of the large Bones is most thick, and least vascular, and that in proportion as they approach to the Extremities, the bony Laminae recede more from each other, and leave greater Interstices, which are filled with a great Number of small Vessels, and Vesicles full of Oil. It is, also, before shewn, that in those Parts of the Bones which constitute the Joints, and are cover'd by a Capsula of Ligaments, which unite the Articulations, such a cavernous Substance is found in the largest Quantity, and only cover'd with a thin bony Crust, which, even in the Os Femoris, hardly surpasses the Thickness of one's Nail. If, therefore, there is a Caries in the most solid Part of the Bone, it is bad, but at the same time, there is great Hope, that the Separation of the carious Part may be obtained, nor will the Substance of the Bone, here so firm, be so soon corroded as in other softer Parts. But, when a Caries of the Bone arises in a spongy Part of the Bone, this thin bony Crust will soon be destroyed, and the subjacent soft Parts corrupted: Hence a violent Putrefaction, and, what is in a particular manner to be dreaded, a Corruption of the medullary Oil will follow. But since about the Joints the Substance of the Bone is most tender, and the Number of the Follicles containing the pinguious medullary Oil greatest, the worst Symptoms will follow. If at the same time we consider, that the putrid Sanies collected here, after corroding the Surface of the Bone, may fall into the Cavity of the Articulation, the Reason will be obvious, why a Caries produced here, must be followed by the worst Consequences, which can hardly ever be removed, except by the Extirpation of the affected Part.

From what has been said, the Reason is, also, obvious, why a Caries slowly consumes the thick and solid Part of the Bones; the spongy Part sooner; and soonest of all, that cavernous Substance of which the Extremities of the large articulated Parts of the Bones consist.

But, because obstinate and numerous Disorders of the Bones, happen in their most vascular, and, consequently, softest Parts: Hence the Reason is obvious why, in Children, a Caries of the Bones spreads fast, and is cured with Difficulty; for in young Patients, there is a far greater Number of Vessels in all the Parts of the Body; many of which are, as Age advances, abolished, and concreted, after an Expression of their Contents, as is observed under the Article *FIBRA*. Hence in the Bones of Children, the Number of Vessels is greatest; for which Reason their Substance is soft, in consequence of which they are easily injur'd, and soon corrupted. It is, also, certain from Observation and Experience, that a Spina Ventosa, or that Caries of the Bones which arises from a Corruption of the medullary Oil by internal Causes, is not generally confined to one Part, but afflicts several Parts, and these often removed at a considerable Distance from each other: Thus *Van Swieten* informs us, that, in the Finger called the *Index*, he knew a Spina Ventosa, affecting the middle Phalanx, a few Weeks after the same Disorder appeared in the *Talus*, and afterwards in the Os Jugale: A considerable time after, the corrupted Part of the Bone was separated, and the Disorder cured, but in such a manner as to leave an unsightly and deep Cicatrix. Hence



It is, also, obvious, that we are not rashly to proceed to the Exirpation of a Spina Ventosa in one Part, since it generally springs up and appears in some others. The Reason of this seems to be, that a Spina Ventosa draws its Origin from an internal Cause, and of all others most frequently, as we have already observed, from a venereal, scorbutic, or rickety Cacochymy, which is generally deposited, not in one, but in various Parts. Besides this Disorder happening in one Part, may infect the sound Humours acting on the Part affected; and, by this means, propagate the Disorder through the whole Body, as is particularly observable in a Lues Venerea, which often affects the Genitals first, and then the whole Body.

If, to what has been said, we add the Doctrine of Contusions, Luxations, and Fractures of the Bones, delivered under their respective Articles; as, also, what, under the Article CAPUT, is said concerning Wounds of the Head, which injure the Bone, we shall have both the History and Cure of the principal Diseases of the Bones; especially if to these we add an Anchylosis, which is an Immobility of the Joint, attended with an hard Tumor, and principally produced by a Callus of a Bone, fractured at the Articulation, an Inspissation of the Mucilage of the Joints, mentioned by *Clopton Havers*, a Rigidity of the Ligaments, and an Exostosis at the Joints. The Cure of this Disorder, which is highly difficult, is to be adapted to the Diversity of Causes from which it proceeds.

From what has been already said, we may understand the principal Diseases observable in the Bones, especially if we consider what is advanced concerning the Bones, under the Articles CONTUSIO, FRACTURA, and LUXATIO: For under the Article CONTUSIO are enumerated the Disorders subsequent to Contusions: Under the Articles FRACTURA and LUXATIO are many Things relating to the Diseases of the Bones: And under the Article CAPUT there are various Observations relating to the Knowledge and Cure of Diseases of the Bones. Yet we shall here say something concerning the Anchylosis, since it frequently arises from Disorders of the Bones, though it may sometimes happen without them; when for Instance, the Ligaments of the Joints become rigid; or when the Mucilage which lubricates the Extremities and Ligaments of the Articulations, is inspissated and accumulated.

Under the Article LUXATIO, when treating of an Anchylosis as the Consequence of a Luxation, it is observed from *Celsus*, that Contractions of the Joints, by means of recent Cicatrixes, are by the *Greeks* called ἀγκύλας; but that *Paulus Aegineta* called an Immobility of the Joints ἀγκύλας, and ἀγκυλώσεις, the Causes of which were, according to him, an Infarction of the Humours, or a Contraction of the Nerves. Now it is certain, that this Misfortune, which may be justly defined, An Immobility of the Joints, accompanied with an hard Tumor, may arise from a Disorder of the Bones. When this Disorder arises from the luxuriant Callus of fractured Bones, or an Exostosis near the Joints, it is sufficiently obvious, that an hard Tumor is present. But, when it arises from a Rigidity of the Ligaments, or an Inspissation of the Mucilage of the Joints, this Mucilage must gradually be accumulated in the Cavity of the Joint, since, in consequence of its Immobility, it is not consumed. For this Reason the Mucilage will distend the articular Capsula, and produce a Tumor, which, when the thinner Parts of the accumulated Matter are dissipated, may become pretty hard. For this Reason an hard Tumor generally accompanies an Immobility of the Joints, or at least succeeds it, if it does not appear in the Beginning of the Disorder. There is, however, one Exception to this: An Instance of which, says *Van Swieten*, I myself saw, where the whole Arm was dried up by a true Marasmus; in which Case, all the Parts being dried, there was an Immobility of the Joints of this Member, without any Tumor. But, in order to the due Mobility of the Joints, a proper Figure of the articulated part of the Bones is necessary; a Lubricity of their Surfaces, where they mutually touch each other, and a due Flexibility of the Ligaments surrounding the Joints: So that an Anchylosis arises from the following Causes.

*A Callus of the Bone fractured at the Joint.* It is observed under the Article FRACTURA, that Fractures are sometimes succeeded by a Luxuriance of the Vessels of the Bone, and an Inequality of the Callus, by which means the natural Figure of the Bones is altered and deformed. It is certain from many Observations, that such an unsightly Prominence, arising from the Luxuriance of the Callus, has often continued in the fractured Part, during the whole Remainder of the Patient's Life. If, therefore, the Fracture is near the Joint, it is obvious, that an Immobility of the Joint may arise from such a Change of Figure in the Bone. It is true, in most of the Joints, the Extremities of the articulated Bones are fully defended, and covered with a large Number of Parts; for which Reason they are not so easily broken, in those Parts contained within the Cavities of the Joints. But in some Parts the Bones are less kindly bare and ill defended; about the Elbow, for Instance, and the Knee; for which Reason an Anchylosis may happen in these Parts. Thus *Petit*,

in his *Treatise des Maladies des Os*, Tom. 1. tells us, that in a fractured *Rotula* he knew the luxuriant Callus to produce an Anchylosis, which, however, was afterwards cured, because the Substance of the Callus had not acquired a bony Hardness. When, in such a Case, an Anchylosis is dreaded, skilful Surgeons order the Part affected to be so situated, that the Callus may, by its own proper Weight be determined to some other Part; that Compresses be gently secured, between the Joint and the Fracture, that, by this means, the Callus may be hinder'd from falling to the Joint; and, lastly, that the Joint be gently moved, when the first Dressing is removed, afterwards every two Days, and then every Day: Nor, if the Joint is prudently moved, is there any great Danger left, by this means, the reduced Bones should be removed from their Situation, because, as the Bones are largest about the Joints, the fractured Parts will touch one another in many Points, and, consequently, not be easily removed from their Situation. *Petit*, in the Part last quoted, tells us, that by such a Motion of the Joint alone he removed an Anchylosis already formed by this Cause.

*By an Inspissation of the Mucilage of the Joints.* That the Extremities of the articulated Bones might move easily, without being injured by their mutual Attrition, they are lubricated by a mucilaginous Liquor, the Nature and constituent Parts of which are accurately described by *Clopton Havers*, to whom we owe so many beautiful Discoveries, with respect to the Fabric and Structure of the Bones. *Hippocrates*, as is observed under the Article LUXATIO, informs us, that there is naturally in all Joints such a mucilaginous Liquor; and that the Joints are sound when this Liquor is pure: Now this mucilaginous Liquor, as is obvious from the last quoted Article, consists of three distinct Liquors, that is the universal perspiring Matter, the medullary Oil, and the Mucilage secreted from the Follicles situated in these Parts: If, therefore, by whatever Cause this Mucilage is not dissipated or resorbed, it will be gradually accumulated, so as to fill the Cavity of the Joint, and hinder the free Motion of the articulated Bones. In the mean time the thinnest, and most subtle Part of this Mucilage will be dissipated, and the Remainder, of course, render'd thicker: And as the Motion of the Joint is the principal Cause by which this Mucilage, after it has perform'd its Office, is dissipated, so, when such a Motion is either hindered, or totally abolished, there will be a greater Accumulation of the Mucilage; and the Disorder will become incurable, partly by the Inspissation of the Matter, and partly by the Acrimony it has acquired by Stagnation, and which will be capable of corroding and corrupting the smooth cartilaginous Surfaces of the Bones, and the Ligaments which secure the Joints.

This Disorder is known by a Tumor of the Joint, which is at first soft, and then gradually enlarged, but not extending itself beyond the Joint. This Misfortune is most frequently observed in the Joint of the Knee.

*Hippocrates*, in the twenty-fifth Aphorism of his fifth Section, tells us, that *Those who have Tumors, and Pains of the Joints, without Ulcers, are greatly relieved by throwing large Quantities of cold Water upon them.* And celebrated Physicians have since approved of this Method. Perhaps in the Beginning of the Disorder it may prove beneficial, by suddenly contracting the Parts, by means of the Cold; in consequence of which the Humour beginning to be accumulated, may be repelled, provided it is sufficiently thin: But where the Humour is already thick, and its Quantity large, it is not probable that a great deal of Relief can be afforded by this Method. But often repeated Frictions, Motion of the affected Joint, penetrating Fomentations of Wine, Salt, Vinegar, and the Urine of sound Persons, with an Addition of aromatic Herbs, such as Horehound, Scordium, and Rue, and Cataplasms prepared of the like Substances, will prove beneficial. In the most difficult Cases, Embrocations of warm mineral Waters, falling slowly, and from an Height, upon the Part affected, have not only afforded great Relief, but, also, sometimes produced a perfect Cure. The want of mineral Waters may be supplied by the penetrating Fomentations just recommended, and applied by way of Embrocation. *Petit*, in his *Treatise des Maladies des Os*, Tom. 1. informs us, that he saw happy Effects produced by Quick-lime-water, with a Lixivium of Sal Ammoniac, poured from an Height upon the Part affected; for by this means there is instantaneously produced an highly penetrating Spirit of Sal Ammoniac, which is justly esteem'd the most powerfully attenuating Medicine. But when the Quantity of this accumulated Mucilage is so large, that it cannot be dissipated by all these Methods, *Petit* orders the most depending Part of the Tumor, to be laid open with a Lancet, to the very Cavity of the Articulation, that the contained Liquor may be thus discharged; after which he orders the Use of the Medicines before prescribed.

*A Rigidity of the Ligaments.* That the articulated Bones may move freely, 'tis requisite that the Ligaments should be sufficiently firm to secure the Joints, and, at the same time capable of yielding, and being lengthen'd, whilst the Joints are bending. When, therefore, by whatever Cause the Ligaments are become rigid, tho' all the other Parts of the Joint are in their natural Condition, there will be an Immobility produced, which will afterwards



afterwards be succeeded by a Tumor, because the Mucilage, accumulated in the Cavity of the Joint, is not, as in a sound State, dissipated by Motion; in consequence of which, there will be a perfect Anchylosis. This Disorder may be produced by all the Causes capable of producing too great a Rigidity in the solid Fibres, as, also, by the Causes capable of producing the same Effect in the small and large Vessels; see the Article FIBRA. Thus we observe, that decrepit old Persons have almost all their Joints stiff and rigid, partly through a Defect of the pinguious Oil, destined for the Lubrication of the Bones, and partly because the Ligaments are become callous, and sometimes bony. These Effects are, also, observed in those Men, who, before they have arrived at a great Age, have laboured intolerably hard, whilst, by too strong a muscular Motion, the firm Parts of the Body are indurated. This Disorder, also, frequently succeeds violent and ill-cured Inflammations of the Ligaments, since the Fluid, becoming stagnant, and coagulating, is concentered with the Vessels which contain it. Hence those who have been frequently afflicted with the Gout, are so often subject to an Immobility of the Joints. Besides, it is shewn under the Article FIBRA, that too great a Distraction of the solid Parts renders them weak, and that the Weakness arising from this Cause, is cured by every thing which removes their too great Distraction. When, therefore, the Ligaments, in consequence of the Immobility of the Joints, are not stretched, they are generally spontaneously contracted, and become so rigid, as afterwards totally to hinder the Motion of the Joint. After Fractures and Luxations, unless, during their Cure, the Joints are sometimes mov'd, an Anchylosis frequently arises from this Cause, as also, in paralytic Members; and, in this Case, as the Flexor Muscles are generally stronger than those called the Extensors, the Joints are somewhat bended and become rigid, not only on account of the Induration of the Ligaments, but, also, because, by the long State of Rest, the Flexor Muscles are gradually contracted and shorten'd, so as to become almost incapable of being lengthen'd any farther.

'Tis, therefore, obvious, that a preternatural Rigidity of the Ligaments is, of all others, the most frequent Cause of an Anchylosis; but, at the same time, there are, for the most part, great Hopes that such a Disorder may be cured, provided it is not of too long standing, nor draws its Origin from Causes which cannot be surmounted by any Art, as in decrepit Old-age: For Instance, If soft Aliments are used, and the Part affected, frequently exposed to aqueous Baths, and especially Vapour-baths. If after these the Part is well cleansed, and rub'd with emollient Oils, and the Motion of the Joint attempted, by bending and extending it as much as possible, without producing any considerable Pain, Diseases of this Kind are, by these Measures, often cured, when they were thought desperate. But these are more fully considered under the Article FIBRA. A memorable Instance of the Power and Efficacy of this Method is found in *Mem. de l'Acad. Royale des Sciences, An. 1721*. See ANCYLE. *Paulus Aegineta* gives a Cure of the Anchylosis, pretty much the same with this, whilst, in the 55th Chapter of his fourth Book, he orders the Part affected to be anointed with Hydrelæum, in which Linseed, Marshmallows, and Fenugreek, have been boiled. Then he orders it to be anointed with Liniments, composed partly of emollient, and partly of aromatic Ingredients, and to be covered with Plaisters of a like Nature. He, also, commended gentle and continual Friction, in Conjunction with this Method, and frequent Attempts to bend and extend the Joint.

*An Exostosis about the Joints.* Since, to the due Motion of the Joint, a certain determinate Figure of the Extremities of the articulated Bones is requisite, 'tis sufficiently obvious, that this Figure being changed by the Exostosis, the Motion of the Joint must, of course, be hindered. 'Tis obvious, from what has been said, that there may be such Tumors about the Joints. To this Species of Disorders, we may, also, refer a Concretion of the articulated Bones, whether by an Inspissation of the Mucilage naturally lodged between them, or a Consolidation of their rough, and, perhaps, corroded contiguous Surfaces; memorable Instances of which are found in *Hildanus de Ichore & Meliceria, Cap. 25. Hist. de l'Acad. des Sciences, An. 1716. and Columbus de Re Anatomica, Lib. 15.*

That an Anchylosis is not to be cured without great Difficulty, is certain from what has been already said: But the prognostic Signs vary according to the Diversity of the known Cause; for if it proceeds from a Callus of a Bone fractured near the Joint, and if that Callus has acquired a bony Hardness, the Disorder is incurable, as, also, when it arises from an Exostosis, or Concretion of the articulated Bones. But when it arises from an Inspissation of the Mucilage of the Joints, or a preternatural Rigidity of the Ligaments, there are still Hopes of a Cure to be entertained, if the Disorder is not inveterate. *Van Swieten.*

In the Works commonly ascribed to *Hippocrates*, the Caries is said to be a dried Phlegm between the Laminae of the Bones, or Earth dried by Heat, or a Defect of the Mucus. The Account of the Symptoms is very incomplete. The Prognosis is as superficial; for I see no more, than that, in tedious Ulcers, the Bones are affected, and the Cicatrices are hollow; and livid Flesh, in a diseased Bone, is a bad Sign. As to the Cure, Cold is said to be hurtful to Bones, and this Disease is to be treated as a Fracture.

*Celsus* gives no Opinion of the Cause of the Caries, and describes very few of its Symptoms; but is very particular in his Directions concerning the Cure.

His Method is to lay all the carious Parts bare; and, if it be then doubtful how deep the Caries goes, to pierce with the Trepan, or pyramidal Perforator, till the Raspings are no more black. If the Caries be superficial, he orders it to be burnt once and again with an hot Iron, that a Scale may separate from it; or to rasp it till either Drops or Blood issuing out, or the white Surface of the Bone, shew all the carious Part to be taken away, when Nitre, well-pounded, is to be sprinkled on the Bone. When the Caries is deep, he advises a great many Holes to be made through it with the Perforator, till the Bone be quite dry: For thus, adds he, the corrupted Part will be brought off. When the Caries penetrates to the other Side of the Bone, it must be cut out. When the Extent of this deep Caries is not larger than what the Head of the Trepan will cover, he employs this Instrument to take it out. If the Caries be large, he orders Holes to be made round the Edges of it with the Perforator; and then, cutting the Bridges between these Holes thro' with a strong Knife struck with a Hammer, he takes away all the carious Part.

The Medicine which *Diocorides* principally recommends for bringing away the Scales of Bones, or for what is now called their Exfoliation, is the Powder of the Root of the Peucedanum, and the Juice of Euphorbium; advising the Teguments to be defended with Liniments, or Cerats, when the Euphorbium is to be applied.

*Galen* defines the Bones to be the hardest, most dry, and terrestrial Parts of the Body, whose Qualities are cold and dry. He thought a Caries in a Bone; analogous to an Ulcer in a soft Part; and that it was occasioned either by the adjacent Flesh generating a bad Sanies, with which the Bones being moistened; were corrupted, or that it proceeded from a mucous Humour drove to the Bones.

In consequence of this general Doctrine concerning Bones, and their Erosion, with the general Axiom, *That Contraries are the Remedies of Contraries*, *Galen* must necessarily have been led to discharge all things which he esteemed cold, and to recommend Driers in a Caries. He is very sparing in his Recommendations of particular Medicines for this Disease; *Opopanax* in Ulcers of Bones, and the Root of *Peucedanum* for Exfoliation, with some compounded Plaisters, are all he mentions.

The Greek Physicians, after *Galen*, have added little concerning this Disease, except some few Medicines, answering *Galen's* Intentions of Cure. *Paulus Aegineta* has something of a different Formula for making the affected Part of a Bone separate: It is a Cataplasm made of the Leaves of the wild Poppy, and of the Fig-tree, with Barley-flour and Wine; or, instead of it, he recommended equal Parts of the Seeds of Henbane, and of Vitriol.

The *Arabians* added greatly to the List of drying Medicines, most of them actually so, that is, in the Form of Powders, and the greater Number potentially so too; that is, such as, when tasted or applied to Sores, stimulate, raise Heat, and some Degree of Inflammation. They, also, restored the *Celsian* Practice of burning and rasping diseased Bones, which had been neglected by the Greek Physicians, but has been generally mentioned by Writers after the *Arabians*.

One of the *Arabians* (*Albucasis*) advises, in a compound Fracture, where a Bone is bare, to put a Cloth, dipt in black styptic Wine into the Wound; but not to make use of a Cerat, or any thing in which there is Oil, lest it make Corruption happen to it.

Those who wrote on Surgery, when Learning began to be restored in Europe, in the fourteenth and fifteenth Centuries, copy'd mostly the *Arabians*; but, after burning the Bone, which is the Method of Cure in the Caries, that the most eminent of them are fonder of, they applied oily Medicines to the cauterized Bone.

After Chymistry came to be cultivated in the sixteenth Century, other Methods of cauterizing were introduced.

*Angelus Bologninus* tells us, that some, in his Time, made use of scalding-hot Oil, heated Roots of the Asphodel, kindled Brimstone, and the Water by which Gold is separated from Silver.

*Joannes de Vigo*, besides Aqua Regia, mentions Oil of Vitriol, Unguentum Aegyptiacum, and Vitriol burnt and mixed with Aqua-vitæ, as Cauteries. After cauterizing, he dressed with Unguentum Absterisivum de Apio; and says, that, by this Method, the Separation of the diseased Part is made in forty Days after Cauterizing.

*Vesalius* mentions Oil of Sulphur and Euphorbium for the Caries; but prefers a Preparation of Antimony, which he does not describe.

*Fallopian* agrees with *Vesalius* in the Form of the drying Medicines to be applied, and in the Management of a Bone after it was burnt: The Place, say they, immediately after being burnt, is to be frequently moistened with Rose-water, and the White of an Egg, that Inflammation, and other Symptoms, may be prevented; afterwards the Eschar is to be ripened with Butter, or Unguentum Tetrpharmacum.

*Ambrose*



*Ambrose Paré* says, more explicitly than *Albucasis*, that the Application of unctuous and oily, or of moist and suppurating Medicines, corrupts Bones. *Paré* seems, also, fonder of the simple Driers, that is, the absorbent Powders, than those who went before him, whose Driers were as much potentially so as actually.

*Fabricius ab Aquapendente* reckons Aqua-vitæ among the stronger Driers, and recommends the Juice of Leeks with Salt.

*Gulielmus Fabricius Hildanus* is rather more positive than *Paré*, in forbidding the Application of all moist and oily Medicines to Bones laid bare: He seems, in one Part of his Writings, to expect always an Exfoliation from Bones laid bare, though, in other Places he relates Examples of Bones laid bare, being cured without any Desquamation.

*Hildanus* introduced the free Use of Euphorbium, and its Tincture, in Spirit of Wine, the Acrimony of which the Writers before him had warned their Readers to guard against.

*Marcus Aurelius Severinus* takes notice of the shrill Sound, as if a Void was below, which a Piece of Bone has, when struck after its Exfoliation begins. He recommends Oil of Euphorbium, and of Lime, as a proper Application to corrupted Bones.

Soon after *Severinus's* Time, that is, about the Middle of the seventeenth Century, the essential aromatic Oils of Vegetables were introduced.

*Nicolaus Tulpus's* favourite Medicine for Exfoliation was Oil of Cinnamon, with Oil of Sublimare.

In the latter Part of the last Century, not only Variety of these Oils were used, and different Tinctures in ardent Spirits; and other Compositions of the Driers of the Antients, and of the aromatic Oils, were contrived; but the alkaline Salts, both fixed and volatile, such as Salt of Tartar, Spirit of Sal Ammoniac, &c. came to be employed, as well as the acid Spirits, Oil of Sulphur, Vitriol, &c.

While the Generality of Writers at this time, were so fond of the Aromata, Tinctures, Elixirs, Spirits, &c. Some mention their having cured carious Bones by perforating, trepanning, and cutting them out, or by burning and destroying them with Caustics. Others successfully employed watery Medicines, and dry Lint.

Among the Writers of this Time, *Wiseman* is more accurate in relating the Appearances of carious Bones than former Authors: They generally remarked only the black Colour, Greasiness, Roughness, spongy Softness, and stinking Smell, and thin brown Ichor of Bones, when carious, with the spongy Flesh growing out from them: *Wiseman* observes, that carious Bones may be of a white, brown, or black Colour; and adds, *If the white be pory, the Caries may be deeper, and more dangerous, than if it were black and hard.*

His Method of Cure is like to *Celsus's* in several Particulars: He orders all the carious Part to be laid bare, with Caustics applied to the Teguments; then to scrape the rotten Flesh away, or to consume it with Escharotics: Where that cannot be done, because of large Vessels, Nerves, or Tendons in the Way, he desires the Orifices of the Ulcer to be dilated with Sponge, Tent, Gentian-root, &c. But if the Cure of the Caries is of greater Consequence to the Patient than these Parts are, he advises to cut them through to come at the Bone. When the carious Bone is laid bare, if the Caries be superficial, he would have it rasped, and then to be dressed with the milder Sarcotics, or digesting Ointment: In few Days after the Application of which, he says, you may see the Flesh thrust forth in small Grains, which is Callus. Burning with an hot Iron he frequently used with Success, for hastening the Exfoliation; at other times he pinched away, or broke off the Caries: His Medicines are the Driers, chymical Oils and Escharotics, only that in several Places where the Bone lay deep, he used Injections, composed of the vulnerary Plants, boiled in watery Liquors, with some ardent Spirit, and a little dulcified Spirit of Vitriol.

I took notice before, that *Hildanus* expressed himself as if he thought Bones laid bare must exfoliate: This came to be a general Opinion, as is evident from the Directions which most chyrurgical Authors give for treating Wounds, where Bones were laid bare; and *Belleste* tells us, it was the universal Practice in his time, to dilate such Wounds, and to keep them open, in Expectation of the Exfoliation: He endeavours to shew the Absurdity of this Practice, and recommends to Surgeons to endeavour to prevent Exfoliation in such Cases, and for this Purpose he not only advised what *Felix Wurtz* and *Cæsar Magatus* had done before him, to bring the Lips of the Wound nearer together, and to dress seldom; but, also, proposed, that, when a considerable Space of the Surface of smooth firm Bones is laid bare, there should be a great Number of small Holes, made with a Perforator or a Trepan, as deep as the Diploe, or Cancelli of the Bones; after which he says, fleshy Papillæ rise out from these Holes, and extend themselves all over the bared Surface of the Bones, and the Wound is soon cured, without any Exfoliation: This Practice has been approved by some considerable Men, though, so far as I know, it has not been general among Surgeons. *Belleste* condemns the Application of acid

Spirits to Bones, as increasing the Caries; and being of Opinion, that the Air acts by its Acid on Bones, he insists in rather stronger Terms than most former Writers had done, that Bones should be well defended from the Air.

*Petit* is the only Author of this present eighteenth Century, whom I need to mention: He names the several Diseases in which Caries most frequently happens, and relates the Symptoms by which it may be judged, that a Bone is corrupted: Such are the deep sear'd Pains preceding an Abscess forming near a Bone, with a livid Colour, and Sponginess in the Teguments; an Ulcer continuing long near a Bone; the sprouting Flesh of such Ulcer appearing spongy, of a pale Colour, easily penetrated by a Probe, and bleeding readily without giving Pain; the Quantity of Matter being larger, than commonly comes from an Ulcer of that Extent; the thin Consistence, brownish Colour, and stinking Smell of the Matter; its appearing black on the Plaisters, though there be no Lead in their Composition; feeling the Bone scabrous and unequal.

*Petit* observes several Appearances that rotten Bones have, which may make so many Species of Caries. 1. The Surface of a Bone may be corrupted, and may, notwithstanding, be pretty firm and smooth, without throwing out much Matter: He calls this a *dry Caries*. 2. If the Surface of a Bone be very unequal, with a Number of small Holes, discharging large Quantities of Sanies, he names the Caries *Vermouillé* or *Worm-eaten*, from the Resemblance it has to Wood eroded by small Insects. 3. Flesh may grow in the Interstices of the corrupted bony Fibres, and may fill up the Cavernulæ. 4. Sometimes the Bones are imperceptibly wasted in Cancers.

*Petit* says, the dry Caries is generally the most superficial, and cures more easily by Exfoliation than the other Kinds, which has made him think, *That the Exfoliation of Bones is only made readily, when the carious Part has no more Communication with the Vessels of the sound Bone: This Communication entirely stopped, gives Ground to believe, that the Juices, which move in the Vessels of the sound Part, make an Effort against the corrupted Part; and that these Efforts, redoubled by the Resistance, and repeated every Moment of Life, are the Cause which insensibly separates the corrupted Part of the Bone.*

*I perceive soon, says he, Flesh rising in the Circumference of the corrupted Piece, which grows more and more. I have Reason to believe, that, proportionally as the first Efforts of the Liquors make the Separation, these nutritive Juices congeal, and form Flesh; and that it is the insensible Growth of this Flesh, which completes the Separation of the diseased Bone, and thrusts it outwards. I am the more certain Nature acts thus, because I find this granulated Flesh in the Place where the separated Piece of Bone was; and that the good Qualities of this Flesh make me certain, that the Bone is sound below.*

The Motion of the corrupted Piece of Bone, and the Blood coming out below it, are the Symptoms by which, *Petit* tells us, the Exfoliation may be known to begin.

Our Author remarks, that the Worm-eaten Caries, and that where Flesh rises in the Cavernulæ, may be of different Depths in the Bone, and are more difficult to cure than the dry Caries. When the Quantity of Sanies (which is generally bloody in the latter Species of Caries) is very large, there is Reason, says he, to suspect it comes from the *Cancelli*, where the Marrow is contained, and where the Disease frequently begins; from which if it does not find an Exit, it will kill the Patient.

*Petit's* Methods of Cure are these: When the Caries is very superficial, and of the dry Kind, he dresses it with Dossils dipped in Spirit of Wine, as he would do a sound Bone laid bare, which he affirms does not always exfoliate. If the Caries is deeper, and an Exfoliation must be hasten'd, he applies to it Aqua-fortis, or Spirit of Nitre in which Quick-silver has been dissolved, which he recommends as a favourite Medicine; and afterwards he makes use of Spirit of Wine. He discharges the exfoliating Part to be taken away, till it be quite loose. If the carious Part cannot be separated by these Means, he recommends the red-hot Iron, Rasping, the Perforator, and Trepan, as *Celsus* orders.

After the Caries is thus removed, *Petit* judges by the white, thick, mild Matter, firm Flesh, and hollow hard Cicatrix, that the Bone is sound; or he dreads a Relapse, if the Appearances are otherwise.

The general Practice of our Surgeons is to keep Ulcers with carious Bones, as much dilated as they can, by Dossils, Sponge-tent, and the like, to destroy the spongy Flesh with Escharotics, to apply Spirit of Wine, Tincture of Myrrh and Aloes, Tincture of Euphorbium, and such like, to the Bone, and frequently to all the Sore. As these ardent Spirits are applied to hasten the Exfoliation in a Caries, they are applied for the most part, also, to sound Bones laid bare, as Preservatives, it is said, against their Corruption, and to prevent Exfoliation.

From this historical Sketch of what Authors have said of the Caries, it is evident how little the Circumstances of this Disease have been consider'd, and what a contradictory odd Medley of Practice has been followed. Surely all of it could not have been supported by Observations tolerably made! Of late indeed some



some Species of this Disease have been distinguished, but the Practice is too uniform in all of them. To reform this, it will be necessary to examine more accurately the Appearances of this Disease.

Previous to any Account of the Caries, it will be necessary to remark, that Bones have their Vessels, and circulating Fluids, and, in short, the same general Texture which other Parts have; so that Solidity, and stronger Cohesion of Parts, are the only evident distinguishing Characters of the Composition of Bones. Of this Truth there are many Proofs, such as,

1. Bones are in the State of Membranes and Cartilages, before they ossify.
2. The hardest Bones have sometimes changed back again into a soft State.
3. The granulated Flesh, which rises out from Bones after Fractures, Amputations, the Trepan, or in Exfoliation, differs nothing from what would come from any soft Part; yet in several Cases becomes found solid Bone.
4. When the Texture of Bones is unravelled artfully, and compared with the Texture of the softer Part, it appears alike in each.
5. By a chymical Analysis, the same Principles are obtained from Bones, as other Parts, the Proportions of these Principles being different in different Parts.
6. By comparing the Diseases of Bones with similar ones in softer Parts, as I shall do in considering the different Species of Caries, the general Proposition, of Bones differing only in Solidity, and Cohesion of Parts, from the other softer Organs of the Body, will be further confirmed.

The Species of Caries which I have had Occasion to see, are,

I. What *Petit* calls the dry Caries, where the Bone is pretty smooth and firm, and throws out little Matter. Though the Surface of the carious Part of a Bone in this Species is not of a very dark Colour at first, yet, before Exfoliation, it becomes of a dark-brown or black Colour. An Exfoliation is more easily obtained here, than in any other Kind. Before the corrupted Part can otherwise be observed to separate, one will hear, as *Severinus* remarks, a shrill Sound, when it is struck with a Probe, as if it was hollow; soon after this the Edges of the carious Part rise a little, and Pus, or, if it should be pressed, Blood, is seen coming out below them; granulated Flesh then appears at these Edges, the Bone is more raised gradually towards the Middle, till all the carious Part be separated from the new sprouting Flesh, which arises up on the whole Surface of the Bone below, and seems to push off the carious Scale, so that it becomes quite loose, and can be taken away without any Violence. The Ulcer is then in a fair way of curing, and though a considerable Thickness of Bone is come away, yet, in some time after, little Depression is to be felt on the Surface of the Bone, the new Flesh having gradually become harder, till it supplies, in a good measure, what was taken away.

Whoever has seen the Separation of a gangrened Piece of Skin, or of the Eschar of a Caustic, applied to the Skin, where a Fissure first appears in the Margin of the mortified Part, Pus begins to issue out there; the Division between the sound and mortified Part becomes larger; new Flesh arises; the Separation goes on from the Circumference to the Centre, till the mortified Part drops off, and the new Flesh supplies its Place: Whoever, I say, has seen this, and compares it with the Phenomena of the dry Caries, will judge that, Allowance only being made for the Rigidity of the bony Fibres, which cannot contract, as the Fibres of Skin do, the Appearances are the same in both Cases: And, therefore, I would call the State of the Bones, described above, the gangrenous Caries.

II. The second Kind of this Disease is *Petit's* worm-eaten Caries, in which the spongy, or cavernous Texture is evident; it has not such a dark Colour as the former, the Quantity of Matter sent out from the Cellules of the Bones is greater than in the former Kind, and is vastly increased when the corrupted Sanies comes out from the Marrow of the Cancelli. Pieces of the rotten Bone may be broken off here, or they may fall away; but no regular Exfoliation is to be expected, unless, when, by Art, it is reduced to the former Species. The gradual Wasting of the bony Fibres, by the Suppuration, is often very remarkable in this Caries; a Piece of Bone, which appeared as large as the End of one's Thumb, and of a solid Substance, shall become less than the Point of the little Finger, and so spongy, that it can scarce be touched without breaking.

The worm-eaten Caries, where the Substance of the Bone only is affected, may be compared to an Ulcer of the soft Parts, which has a Number of little Sinuses in its Sides; such as I have frequently seen, when hard Tumors had only in part suppured, and were not all melted down into Pus; Drops of Matter could be seen drilling out from the numerous Orifices of the small Caverns in its Sides. When the Sanies comes from the corrupted Marrow in the Cancelli, the Disease is analogous to an Abscess, the Matter of which has eroded a Number of small Holes in the Skin.

III. Frequently a spongy, bleeding, fleshy Substance rises in all the little Caverns of the worm-eaten Caries, when it may be

called Carnous; and is much akin to Ulcers, with Hyperfarcosis.

IV. As the soft Parts are dissolved into a mucilaginous Substance, which destroys their original Form and Texture in the white Swellings, as they are called, so, in this Disease, and some others, the Periosteum becomes thicker, the Bone turns softer, its Surface is eroded, a yellow-red spongy Substance sprouts out; and, proceeding deeper into their Substance, wastes the bony Fibres.

The Difference of the Appearance of this Kind from what I called the carious is, that, in the carious, the spongy Flesh grows out of the Caverns, while the grey, or brown-coloured, spongy, bony Sides of them still remain; whereas, in the other, the bony Fibres disappear where-ever the spongy Flesh comes, so that one can scarce determine, by the Probe, whether or not the Bone is carious. Upon scraping away this Bone-consuming Flesh, the Surface of the Bone appears rough indeed, but not much eroded, nor greatly altered in its Colour. I have seen some Ulcers in soft Parts, where such a consuming spongy Flesh arose.

V. Frequently, upon opening an Abscess, one shall see, at the Bottom of it, a white smooth Bone, without its Periosteum, or Connection to any of the neighbouring Parts, except by its Ligaments at its Extremities. By any Trials we can make, and by what we can judge of the Bone, changing its Colour gradually, as it continues exposed to the Air, and the Necessity of its coming all away, before any Cure can be made of the Ulcer, it appears, that there was no Circulation of Liquors in such Bones, before the Abscess was opened.

This Way of Bones mortifying happens most commonly in scrophulous Patients, in whom something analogous to this is often to be observed in the Glands, round which a slow Suppuration is made, which leaves them almost entirely separated from the surrounding Parts.

VI. In one Species of Exostosis, the tumefied Part of the Bone is softer than the rest of it, and is not composed of regular Fibres, nor cavernous, but as if the ossifying Juice had been thrown out irregularly; over which a cartilaginous or tendinous Substance is spread; and from this a firm, shining, smooth Flesh grows out, which, after the Teguments are removed, sends forth a thin, stinking, acrid Sanies; the Patient complains often of throbbing Pains in it, and sometimes considerable Hemorrhages are made from imperceptible Vessels in its Surface. May not this be compared to ulcerated Glands?

VII. In the spreading, eating Cancers, of which all Practisers know the Symptoms, the Bones are wasted, as well as the soft Parts; and the Appearances are the same in both, unless that the Bones do not consume quite so fast.

As the Aetiology would lead me into too large a Field of Dispute, and the Prognosis would require so many Suppositions as would be tedious, or would be so general as to be of little more Use than the common Directions laid down by practical Authors, I shall, therefore, proceed to the Cure.

In treating any Caries, it is altogether necessary to examine strictly all Circumstances, and to discover, if possible, what Cause, either general or topical, may have made the Corruption of the Bones, that Endeavours may be used to remove it, if it still subsists. Seeing it would be very improper to pretend to give here Directions for the Cure of the Lues Venerea, Scrophulæ, Scurvy, Gangrenes, Abscesses, Wounds, Contusions, and all the other Diseases which may occasion Caries, I must confine myself to the topical Management of the Caries, without any regard to the Habit of the Patient, or to any other Disease.

A speedy and safe Separation of all the corrupted Part is, then, the principal Indication to be pursued; for executing which, you see from the History, very many Means have been proposed: To know which of these are preferable in the different Cases which may be under our Care, it will be necessary to consider the evident Operation and Effects of the several Medicines proposed, which may be reduced to the following Classes.

1. The insipid terrestrial Absorbents, such as Powder of Coral, Crabs-eyes, and the like, put into an Ulcer, where a Bone is carious, can have little other Effect than to imbibite the Matter of the Ulcer; if they fall into any Cavernulæ of the corrupted Bone, they may remain so long there, as that the Matter they imbibe may become acrid. Scraped Lint is an Absorbent which has not this Disadvantage.

2. The Powders which have aromatic, or other acrid Particles in them, such as the Powders of the Roots of Birthwort, Bryony, Peucedanum, Aloes, Myrrh, Euphorbium, not only absorb Liquors, but give more or less Stimulus in proportion to their Acrimony; and as the Effect of all Irritation is some Degree of Inflammation, which in Sores is principally removed by a subsequent increased Suppuration, these Powders may assist to separate corrupted from sound Parts. Such of them as have balsamic Particles in their Composition, encourage the Suppuration most. Several of them resist the Putrefaction of animal Substances, and, therefore, may preserve a carious Bone, or the Matter coming from it, from such an high Degree of Putrefaction as they might otherwise go to. Besides these Effects on the

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Sore,



Sore, regard must always be had to their Operation, if any of their Particles are absorb'd into the Blood-vessels; for some of them produce more or less of Fever; others become Purgatives, &c. according to their different Powers, which are known to those who are acquainted with the Virtues of Drugs.

3. Ardent Spirits, as Aquavita, Spirit of Wine, being liquid, can be introduced further into a carious Bone than Powders; they stimulate Sores, resist Putrefaction, harden the Fibres, coagulate the Liquors, hinder Suppuration, and quicken the Pulse when absorb'd.

4. The Tincture of the Powders above-mention'd, in these Spirits, partake of the Nature of both, principally of the Spirit of which the larger Share of the Composition consists.

5. The essential Oils, as Oil of Cinnamon, of Cloves, and the like, stimulate, erode, resist Putrefaction, and, mix'd with the Blood, raise some Degree of Fever.

6. Common Oils, Balsams, Resins, relax, increase the Putrefaction, and are allowed universally to be the most effectual Suppurants and Incarners.

7. Water relaxes the Solids, and dilutes the Fluids, when nearly of the same Heat with Animals.

8. Vinegar stimulates and resists Putrefaction; when weak, enjoys, also, the Virtues of Water; when strong, approaches to the following Class.

9. The natural Salts, Nitre, Sea-salt, Alum, the Vitriols, have different Degrees of Pungency, and proportionally stimulate or erode; otherwise they preserve animal Substances from Putrefaction.

10. Acid Spirits, extracted from Fossils, by the Force of Fire, such as the Spirits of Nitre and Sea-salt, the Oils of Sulphur and Vitriol, coagulate the Liquids, and mortify the Solids; by being diluted with Water, they approach to Vinegar.

11. By dissolving metallic Substances in those acid Spirits, generally their corroding, sphacelating Power is increased, and some of them give such violent Pain, as frequently to bring on Convulsions.

12. Metallic Bodies, corroded by Acids, generally erode, when applied to Sores. Some of these, for Example, *Sublimate Mercury*, and some other mineral Substances, particularly Arsenic, have shaken the whole Frame of the Body, when applied externally; and the Mercurial Preparations sometimes enter the Blood, and produce a Salivation.

13. Alkaline Salts and Spirits, as the Salt and Spirit of Hartshorn, Salt and Spirit of Sal Ammoniac, Pot-ash, Salt of Tartar, Oil of Tartar, and the like, stimulate, erode, and increase Putrefaction; when absorb'd, as the volatile ones very readily are, they quicken the Pulse. The eroding Power of these Salts is greatly increased in their Preparations with Quick-lime, as in the common Caustic, which mortifies any Part of a living Animal it is applied to, but with remarkably less Pain than what the Acids, or their Preparations with Metals, give.

14. All Bodies heated beyond a certain Degree, and applied to our Bodies, give us Pain, stimulate, and inflame; when greatly heated, they mortify whatever Part of an Animal they touch.

15. The Effects of rasping, cutting, breaking, and trepanning Bones, are altogether evident.

16. In every Wound, or Ulcer, the Matter discharged into it must be the most constant Application to the Side of the Sore; when this Matter is laudable mild Pus, it is one of the most powerful good Digesters, Suppurants, and Incarners; when it stagnates too long, or when the Liquors or Vessels are faulty, it may become an acid stimulating eroding Sanies; when absorb'd into the Blood, it infects all the Liquors, stimulates the Vessels, and is capable of producing violent Disorders.

The Effects I have attributed to these Medicines, are such, as are evident to the Senses, and what all who practise know; but do not always consider; when they make use of them; otherwise, they would have adapted them better to the several Species of Caries, and to the different Stadia of each, the Cure of which I now proceed to.

#### OF THE DRY OR GANGRENOUS CARIES.

When the dark Colour, and dry Surface, of a carious Piece of Bone shew it to be fully mortified; especially, if the Thrill Sound, and rising Edges of it, with Pus coming out below them, discover the Exfoliation to be begun, Nature of herself, or with very little Assistance, will make the Cure.

If the Pus be mild, and in due Quantity, it will prove the best Suppurant and Incarners, for making the new Flesh thrust off the carious Piece of Bone; care only being taken not to remove it too frequently, nor to suffer it to remain so long as to become too acid.

If the Quantity of Pus be too little, it is to be supplied by the Medicines, whose Effects are nearest to it; so that those of the sixth Class are proper. The *Unguentum Basilicon*, the *Linimentum Arcæi*, or such-like, every Surgeon employs to hasten the falling out of a Piece of Skin mortified by a Caustic. I have often employed them, with equal Success, in bringing away a Scale of a carious Bone, the Separation of which would

necessarily be retarded by every thing which checks Suppuration, and the Growth of new Flesh, as the common favourite Medicines comprehended under Class third and fourth necessarily do; though it must be acknowledged, that Nature, with the Assistance of the Balsam of her own preparing, Pus, will often get the better of all that Surgeons do against her.

While the Exfoliation is making, the external Opening in the Teguments is large enough, if the Pus be so evacuated, that it neither forms sinuous Ulcers, nor is absorb'd to taint the Blood; for otherwise it hastens the Separation of the carious Part of the Bone, more by being collected upon it, than when it has a free Exit.

If, by the external Orifice being small, either of the bad Consequences just now mentioned happens, the Aperture ought to be enlarged, either by filling it with prepared Sponge, which, expanding itself, stretches the Orifice; or it may be enlarged by cutting with a Knife, or eroding with a Caustic the Teguments which cover the Caries; and they are afterwards to be kept asunder, by filling the Sore with soft Dossils, and pressing them in gently by a proper Bandage.

When the Colour of Part of a Bone is considerably alter'd from what it should be in a sound State, but is not so dark as it can be judged to be entirely mortified, while there are no Signs of its Separation, it may prove a very tedious Task to trust the Exfoliation to Nature; and therefore, after laying all the altered Part bare, if it can be done by the Methods proposed in the preceding Supposition, the Surgeon ought to try with the Perforator, or with the Rasper, how deep the Disease goes. If it be only superficial, a complete Mortification is to be made, by applying a red-hot Iron, or the potential Caustery; after which, the Case, and its Management, are the same as were mentioned already.

If the Alteration of the Bone be deeper than the Action of the Iron, or Caustic, can reach, the Surgeon may cut off all that is suspicious, with a very sharp Instrument struck with a wooden Mallet, which gives little Shock to the Member; after which he is to promote, as much as possible, the sprouting of granulated Flesh, such as rises in Exfoliations, from the whole Surface of the Bone, without which no Cure is made; but the Surface anew alters its Colour, and corrupts. If it were asked Surgeons, what the Medicines are, which would most readily procure the Growth of Flesh, they would readily answer, in general, Pus, and balsamic or unctuous Medicines; and such they would apply in all such Cases, except where the Bones are bare. For what Reason this Exception should be made, I understand not: The Parts which yield new sprouting Flesh with the greatest Difficulty, ought, one would think, to have the most powerful Incarners applied to them: And now, after a great many Trials, I can assure you, that no Medicines so effectually prevent the Corruption of Bones laid bare, and assist to cover them so soon with Flesh, as Ointments, Balsams, and Dressings seldom, to have the Assistance of the most effectual Balsam of all, Pus. With these we see daily the Extremities of amputated Bones covered over with Flesh; and by this Method I have had the Pleasure to see large Parts of the Skull, Tibia, and other such very solid Bones, covered in a little time with granulated Flesh, after they had been made quite bare by Wounds, made even with bruising Instruments, and, likewise, after their exterior carious Surface had been cut off, as above directed; and a complete Cure was made, without the least observable Exfoliation.

It is plain, that in the Case I now treat of, where the corrupted Part of a Bone has been all cut away, or when sound Bones have been laid bare, and we wish to make a Cure without Desquamation, that all Medicines, which can mortify the exterior Fibres, such as all eroding Medicines, are to be avoided; as are all such as harden and dry Fibres to which they are applied, so as to prevent the growing of Flesh, which ardent Spirits most effectually do; and therefore, of all the Classes of Medicines which I mentioned, there are none except the Absorbents, No 1, and 2. the unctuous and balsamic, No 6. and Water, No 7. which are not opposite to the Indications of Cure. The terrestrial Absorbents are of no Use; Water dilutes and washes away the Pus; so that some of the more active or balsamic Powders, and the unctuous Medicines, can only be the proper Remedies here.

Whoever has taken notice of the Progress of the Exfoliation of a Bone, or of the Cure of a Bone laid bare without Exfoliation, must have seen the granulated Flesh, rising from every Part of the Surface of the Bone to cover it; and that what Flesh grew out from any neighbouring Part, though it may lie over the Bone, and hide it from the Sight, yet it does not grow to the Bone; and no Cure is made, unless by what rises from every Point of the Bone. Surgeons are even often obliged to destroy such overloping spongy Flesh, to promote the Cure; from which it is reasonable to conclude, that *Belloste's* Dressing seldom contributed much more to the Cures he performed without Exfoliation of Bones laid bare, than the Holes he proposes to be made with the Perforator into the Diploe or Cancelli: The Flesh arising from that softer Substance, overspreading the Surface in the



the Circumference of the Holes, can be no better than the spongy Flesh, which hangs over the Bone from the Sides of the Sore.

If, notwithstanding our Endeavours to make Flesh rise from the Surface of a sound Bone laid bare, or of one that has had its mortified Surface cut off, we cannot obtain this wished for Incarnation, and the Surface of the Bone shews its beginning Corruption by a Change of Colour, it must be treated as above directed in the Case, where we supposed a superficial Caries, it must be completely mortified.

When the carious Part of a Bone is too thick for being separated, either by the Rasper, or Chissel, it is to be taken out by the exfoliating Trepan, or by making a great many Holes in the Circumference of the Caries; and then, cutting the Bridges between them through, the middle of it is raised, or cut off; after which the Management is the same as in the preceding Case.

Very often there is not Space enough in the Sore, to apply right the Instruments proper for cutting away the carious Part of a Bone, and it cannot be safely enlarged: When this is the Case, we can only hasten the Exfoliation, by fully mortifying all that is spoiled, by repeated Applications of a red-hot Iron, or of potential Cauteries. When the hot Iron is to be used, the Bone ought to be previously well dried, that the Iron may not be extinguished by the Moisture; and we are commonly desired to guard the Sides of the Sore with wet Rags; whereas, when either the Iron is to be applied from time to time, or we can judge, that the Exfoliation cannot be speedily made, while we wish to continue a large external Opening, the reasonable Practice is of Design to burn the Sides into a fully mortified Eschar, if some Part is not to be hurt, the burning of which might be of very ill Consequence; for, while this dead Eschar remains, less Moisture will be thrown out, to prevent the Effect of the Cautery, and the subsequent Applications of the hot Iron can be made with little or no Pain to the Patient; and the Orifice does not contract. If a carious Bone, which is to be burnt, lies deep, the hot Iron ought to be introduced through a Cannula placed upon the Bone, that the Iron may be rightly directed.

If the potential Cauteries are chosen, rather than the actual, the common Caustic, prepared of Quick-lime and Soap-lees, deserves the Preference to any of those composed of the acid Spirits; for it gives not near so much Pain; and is not so ready to occasion Convulsions; it penetrates better than the dry Forms of eroded Metals; and does not run so much when it melts, as the mere liquid Acids do; it either is not absorbed, or its Effects are not observed in the Blood, whereas the Mercurial Preparations frequently raise an unexpected Salivation. The Reasons given for burning the Sides of such a Sore as I now treat of, are equally good for forming an Eschar all round the Sides, with the potential Cauteries. This Eschar ought to be kept from separating, as long as the Surgeon can: The most effectual way of doing this, is to soak it frequently with ardent Spirits; by which Management the Exfoliation of the Sides (pardon the Expression, which I use to shew the Analogy) may sometimes be near as long in making, as the Exfoliation of the Bone, if the Suppurants, Pus, and digesting Balsams, are rightly applied to it.

When the affected Part of the Bone is fully mortified either of these ways, the Case is reduced to the Supposition I first made, and is to be treated the same way.

Though Necessity obliges to use Caustics, in the very deep dry Caries, yet, because they require so much Time, and so frequent Applications, before they can pierce through any considerable Thickness of a solid Bone, I would prefer the surgical Instruments, with which the whole corrupted Part can be taken away at once, where-ever they can be conveniently made use of.

After an exfoliating Piece of Bone is moveable, the Orifice of the Sore ought to be made so large, by the Methods before proposed for enlarging Orifices of Sores, as the separated Piece can easily be brought out, and without leaving any considerable hollow Ulcer under the Skin; for thus the pricking Pain, which a loose Piece of rotten Bone frequently occasions, when left to work its Way through a small Passage, and the Suppurations, which may be occasioned by its remaining under the Teguments, may be prevented; and there is no Danger of leaving a sinuous Ulcer, which may require more Time and Labour, than is otherwise necessary for a complete Cure of the Sore, which needs no other Treatment, after all the corrupted Bone is brought away, and the sound Part is covered with firm Flesh, than what any common Ulcer does.

The Cases I have supposed may serve for understanding the different Stadia of this dry Caries, with the Management necessary in each; and, therefore, I proceed to the second Species of Caries.

#### OF THE WORM-EATEN CARIES.

The Cells formed in the eroded Bone, in this Species of Caries, lodging and retaining the acrid putrid Sanies, which In-

creases the Disease, it is necessary to destroy all the affected Part of the Bone, as soon as can conveniently be done. Where-ever the proper Instruments can be applied, Rasping, Chisseling, or Trepanning, according to the Depth or Extent of the Caries, will most speedily answer the Intention. After any of these Operations are performed, the Method of Cure is the same as was proposed, when we supposed these Operations to have been performed in the dry Caries.

When the Sanies comes from the Cancelli of the Bones, the corrupted Sides ought to be taken out by one or more Applications of the Trepan. If the carious Part be of large Extent, the Trepan is to be applied all round the Circumference of it; and, the Bridges being cut through, it is to be all raised up. A Patient was received into the Infirmary at *Edinburgh*, for a swell'd carious *Tibia*; the Teguments were all mortified by Caustic, and then cut away; the Operation of the Trepan was performed fourteen times in the Circumference of the corrupted Part, and all the anterior internal Side of the middle of the *Tibia* was taken out; new Flesh rose from the Cancelli, and became firm Bone, before he went from the Hospital.

If less of the firm Sides of the Bone are found to be corrupted, than what, upon opening the Cancelli, we discover them affected, care must be taken, that the Matter within the Bone should be easily discharged.

When, by the Orifice through the Sides of the Bone being in the lower Part of the putrid Cancelli, the Matter easily flows out, or all the affected Cavity can be filled with proper Dressings, the Cure may be made without taking any more off the solid Sides of the Bone. A Girl, after the Small-pox, having an Ulcer very near the internal Malleolus, an Hole was eroded by the Matter through the Bone, large enough to admit a Finger; a Probe was introduced three Inches upwards within the *Tibia*, without meeting any Resistance; but, on directing the Probe downwards, we felt the Bone full of firm Flesh. A Pastil made of Myrrh, Aloes and Honey, had been put every Day into the Bone; and the Girl had a constant Purging, which ceased after I ordered the Aloes to be omitted in the Dressing of the Sore. An Injection composed of Digestive, and Honey of Roses, dissolved in Water, with some Vinegar, was thrown every Day into the Bone; the Pastil of Myrrh and Honey was introduced a little Way; the Cavity of the Bone gradually filled up with new Flesh, and a complete Cure was made.

When the Sanies stagnates, because of the unfavourable Situation of the Aperture in the Sides of the Bone, one or more new Openings must be made with the Trepan, till either the Sanies has a free Exit, or all the Part of the Bone, covering the putrid Cancelli, is taken away, when the common Cures for other Ulcers are to be employed.

If we cannot perform the necessary Operations for removing a worm-eaten Caries, we must burn it frequently with a red-hot Iron; the Directions for which Operation were already given in treating of the dry Caries. The hot Iron seems to be preferable here to the potential Cauteries; because these may sink into the Cells, and erode deeper than we incline, while they might not destroy the exterior Part.

When, in this Species of Caries, the Sanies is in great Quantity, and very fetid, and the Bone cannot be come at, to do what is necessary for a free Discharge, so that there is Reason to be afraid, that not only the Bone may be farther eroded, but that the Sanies may be absorbed, to occasion an hectic Fever, and all its fatal Consequences, it will be fit to encourage the Discharge of the Matter as much as possible, and to apply such Medicines as blunt or destroy its Acrimony. It is, therefore, necessary to dress frequently in this Case, and to wash out the Sanies, at each Dressing, with a proper Liquor. Ardent Spirits, the Tinctures made with them, and essential Oils, indeed destroy or confound the putrid Smell of such Sanies; and, by contracting the Vessels of any Sore they were put into, lessen the Discharge of the Sanies, which makes them answer the old Theory of their being proper Medicines for the Caries of the Bones; which Disease was supposed to proceed from too much Moisture thrown upon the Bones, whose natural Quality is dry, and, therefore, required drying Medicines to cure them. These, I am persuaded, have been the Reasons, why those Medicines came to be employed for carious Bones: But, from what has been observed of the different Circumstances of Caries, it is evident, that these Reasons cannot be alleged for employing them in all Caries: And in the very Case, which we now consider, and which is the most favourable for using them, there are Objections to them, which make others appear more reasonable to be employed, and which, upon Trial, I have found more successful. The Objections are, that Ardent Spirits, and essential Oils, in very small Quantity, or diluted, (for when pure, and in large Quantity, they are caustic, and penetrate too deep) retard the Separation of the corrupted Parts; they render all the Ulcer callous, which is indeed of some Advantage to prevent proud Flesh, whilst the Bone is not separated, but is troublesome to remove afterwards; they are very readily absorbed, and produce more or less Fever, which hurts the Patient. Some of the most common Tinctures employed, that



that of Aloes particularly, frequently brings on a constant Purging, Common Digestive, or Honey, or both, dissolved in Water, with which Vinegar, or some Drops of an acid Spirit, have been mixed, more effectually correct the putrid Sanies, and can be used in any Quantity, to wash it out of the Sore, without either retarding the Separation of the spoilt Bone, or raising the least Disorder, if absorbed; but, on the contrary, preventing the Mischief, which the absorb'd Sanies would otherwise produce. When the Ulcer is deep, this Medicine ought to be thrown into it from a Sprinze, that it may penetrate every-where, and may bring the Sanies away with it when it recoils.

#### OF THE CARNOUS CARIES, OR ULCER OF THE BONES WITH HYPERSARCOSIS.

This Disease differing only from the immediately preceding in the Addition of spongy Flesh growing in the Cells of the Bone, the general Indications of Cure alter very little; only, as this Flesh bleeds easily, and obstructs the Surgeon's View, the Rasping, Chiseling, and Trepanning, cannot be so proper here as the Cauteries for destroying the corrupted Part; and, seeing the Liquors, constantly ousing from the spongy Flesh, soon extinguish the hot Iron, the potential Cauteries are preferable to the actual Caution. The Application of the Caustic will require to be frequently repeated, because this kind of Caries is generally very deep; and, therefore, it will be convenient to make an Eschar round all the Sides of the Ulcer, at the first Application of the Caustic, and to keep it as long on, as we can, by soaking in ardent Spirits, that it may serve as a Fence for preventing the future Caustics from spreading too far, or giving Pain. The Moisture which the spongy Flesh in this Disease spews out, especially when irritated, is so great, that I have daily dressed with Powder of common Caustic, removing a considerable Quantity of gelatinous Stuff, which collected on the Surface, where the Caustic had been applied, instead of the Eschar, which uses to be made in drier Parts. If the Caustic makes an adhering Eschar, it is in vain to apply any more Caustic, till that Eschar separates, which is to be hastened by suppurant Ointment. By such repeated Applications of common Caustic, I have, in a very short time, consumed a whole metatarsal Bone of the great Toe of an Adult; and have penetrated into the Cancelli, in the middle of a Tibia, the lesser and more spongy Bones consuming sooner.

What has been said of the two former Species of Caries, will readily make one know, what further is to be done in managing the differing Stadia of this Caries.

#### OF THE PHAGEDENIC CARIES WITH HYPERSARCOSIS.

The Management of this Caries is nearly the same with the former; only one or two Applications of the potential Caustic are sufficient to mortify some of the Surface of the solid Bone, which seems to reduce it to the dry Caries. But I must observe, that when this Caries is partial, I mean, when it only seizes one Part of the Bone, which seldom is the Case, the Flesh which thrusts off the mortified Scale, is, for the most part, as phagedenic, or bone-consuming, as what appeared at first: And, therefore, even in this most favourable Supposition, the Surgeon should not promise a Cure, unless he has corrected the Habit, or topical Indisposition, by internal Remedies.

When this Disease has taken firm Root, it will spread upon one End of a Bone, which was in Appearance sound when the Cure of the other End attacked with it was begun; and it will creep along from one Bone to another, with this Disadvantage too, that it is far advanced before one can well discover it.

#### OF THE SCROPHULOUS CARIES.

The spoilt Bones here being principally retain'd by their Ligaments, which we seldom can conveniently come at, to cut through, and which are too sensible to be eroded, Surgeons not only lose their Labour, but do considerable Mischief, when they forcibly keep open and dilate the Orifice of Ulcers where such Bones are, by cramming them with hard Dressings, kept in by a firm Bandage; and by wadding down the spongy Flesh with Escharotics, while they are forcibly endeavouring to make the Bone come away; such tender Constitutions, as these Patients have, cannot bear such rough Treatment; they languish and decay under it. What I have always found of most Service, or rather that did the least Hurt, was to destroy fully the Teguments covering the Abscess formed on the Bone with Caustic, to cut the Eschar through the Middle, to evacuate the collected Matter, and to save the Eschar on the Sides as long as I could; to order very mild Applications afterwards to the Sore, and to wash it frequently with Water. Nature at last separates the Bone, which is to be taken out, whenever it is quite loose.

#### OF THE SCIRRHO-CANCEROUS CARIES.

Actual and potential Cauteries have the same Effect here, as in ulcerated Cancers of the Glands; they don't diminish the Tumor, create great Pain, occasion Hemorrhages, when their Eschars separate, and the like. Most other Medicines do Mis-

chief, none of them do Good; Extirpation only can make a Cure, which may be done, either by trepanning round the Root of the Escrescence, cutting the Bridges between the Holes, and bringing all away, or the Member is to be amputated. All of them I have yet seen were so situated, that it was impossible to make the partial Extirpation; so that I cannot say positively, how it would succeed. After the Amputation of the Member, the Wound cures as well as in other Diseases; but some of the Patients have since been seized with the same Disease in another Member.

#### OF THE SPREADING CANCEROUS CARIES.

This sort of Cancer seldom cures; it will sometimes get a Skin upon it after cutting or burning, or with gentle drying Medicines, or dry Lint, often breaks out again unexpectedly, and there is no certain Cure yet found for it. I never saw this Disease originally formed in the Bones; they are only affected by being in the Way of the Disease; so that whatever Change the original Disease undergoes, the Bones partake of it. *Monro, in the Medical Essays, Vol. 5.*

#### CARIES of the BONES, from HEISTER.

The Caries or Corruption of the Bone may be reckon'd among the principal Causes of the Depravity of obstinate Ulcers. For, when a carious Bone is conceal'd in an Ulcer, it is scarce possible to heal it; or, if it should be brought to appear found outwardly, it will soon break out again, unless the carious Part of the Bone be removed.

A Caries of the Bone happens, when the Bone, from whatever Cause, is deprived of its Membrane, or Periosteum; and, having lost its natural Heat and Colour, becomes pinguious, yellow, brown, and, at last, black. This State, which is the first and gentlest Degree of this Disorder, was call'd by the Antients, *Os vitiatum*, and also *Nigrities*. But the greatest Degree of this Disease is, when the Bone is corroded, and become rough, and sunk into little Holes; when a fetid Sanies is discharged, the Acrimony of which loosens, relaxes, or consumes the adjacent Flesh, so that the Bone seems as it were ulcerated. All the Bones of the Body are subject to this Distemper: And though this Ulcer may sometimes appear to be perfectly heal'd, yet, some time after the Cicatrix has been induced, an Abscess will be form'd, and the Ulcer return, discharging the corrupt, acrid Matter, collected within, from the carious Bone, and producing many dreadful Symptoms, such as Horror, Vomiting, and a Fever, attended with a new Corrosion of the Flesh.

Of this Disorder, and those which are nearly allied to it, there are many different Names and Species. It is denominated Caries, Spina Ventosa, or Spinae Ventositas, a Gangrene or Cancer of the Bones, by *Celsus*; and sometimes it assumes the Greek Appellations of *Teredo* and *Pedarthrocates*. But although some Authors have constituted as many Species of this Disease, as there are Names, so many Distinctions appear to me unnecessary; because I can see but two material Differences, which can only make two Species: 1. When the Disorder proceeds from the internal Part of the Bone. 2. When it begins on the Outside of the Bone, or arises from an external Cause. This Species, with the generality of Physicians, I call Caries, and that Spina Ventosa, or, with *Severinus*, when it happens in Children, *Pedarthrocates*.

The Caries of the Bone, properly so call'd, may be produced by two Causes; 1. If, after a Wound, Blow, Contusion, Fracture, or Fall, the Bone should be deprived of its Periosteum, so as to be exposed to the Injury of the external Air, or corrupted with the pinguious oily Dressings, which are commonly applied to simple Wounds, such as the Oil of St. John's-wort, or of white Lilies, *Samaritan* Balsam, and the like. 2. If by external Violence, or an internal Cause, the Circulation of the Fluids be interrupted, and succeeded by Inflammation and Suppuration: Whence the Vessels designed for the Nourishment of the Bone and Periosteum are inflamed and corrupted, and the Bone itself becomes corroded. This Disorder, if not quickly cured, like Ulcers in the soft Parts, spreads, and communicates its Corruption by degrees.

Hence it may appear, that there are several Degrees of Erosion, or Caries of the Bones. The first and mildest is, when the Bone is laid bare, looks greasy, and turns yellowish; but, as soon as it becomes truly yellow, brown, or black, it degenerates into a worse State. The third Degree is, when the Bone comes to be consumed, rough, and uneven. The more the Bone is corroded, the more rough and uneven it is render'd; as, when the Cranium is perforated, or the Os Tibiæ, or Os Femoris, or consumed to the very Marrow, the Caries is reckon'd very severe. But the most malignant, and almost desperate Degree of this Disease, is when the Caries attacks the Joints, or any other Part of the Bone, which lies deep; because the Hands cannot then have Access to clean the Bone, and the Case admits of no Remedy, but Amputation of the Limb.

A Caries may be discover'd two Ways, as it is conceal'd, or as the corrupted Bone appears to View. When the Bones are open



open to the Eye, the Caries may be discovered by the following Signs: The Bone looks pinguious, and degenerates from its natural Colour, to yellow, brown, or black; the Bone is bare, and the Periosteum destroy'd; if a Finger, or a Probe, be applied to the Bone, it will be found uneven, rough, and perforated, or spongy. 2. But when the Bone is concealed by the Flesh, or other Causes, the Caries will discover itself by the following Signs: The discharged Matter will, for the most part, appear oily, brown, or black, and stink like corrupted Bacon: When the Dressings are taken off, they will be tinged, by the corrupted Matter, with a blackish Colour: When there is Room for passing a Probe to the Bone, which is not always the Case, it will be found to be rough and uneven; the neighbouring Flesh will appear flaccid, soft, loose, spongy, and stink like corrupted Bacon: Lastly, when the Bone can neither be seen, nor reached with a Probe, we may reasonably suspect a carious Bone, when the Ulcer frequently breaks out afresh, after it has been healed, without any other manifest Cause.

Hence it may be deduced, that Ulcers of this kind are always cured with great Difficulty, and seldom without Deformity of the Part; that they are subject to spread, especially if the Caries cannot be conveniently reached; and even when they are healed, as was already observed, they frequently break out again; but when the Disorder increases, and extends to a Joint, as the Knee, no Relief can be expected, but from Amputation of the Limb. If the State of the Patient will not admit of this Operation, he is attack'd with a Languor, and slight Fever, which are soon succeeded by Death. A Caries in the Os Femoris, Os Coccygis, Os Sacrum, Os Crurii, Os Tarsi, and Offa Palati, are extremely difficult of Cure; but when it attacks the Cranium, and, as often happens, even penetrates to the Dura Mater, the Patient is tormented with intense Pains in the Head, continued Watchings, Vertigos, a disturb'd Imagination, with many other such dangerous Symptoms.

With regard to the Cure of a Caries, various Methods have been attempted with Success. The first and easiest Method is used in the slightest Degree of a Caries, by the Application of spirituous Medicines, as the Spirit of Wine, or *Hungary Water*; or by Balsamics, such as the Powder of Birthwort, and *Florentine Orris*, or the Powder of Myrrh and Aloes: Let one or other of these be daily sprinkled on the affected Bone, after the Sanies is wiped off with dry Lint, till the morbid Part of the Bone is almost exfoliated, and the Flesh appears new, sound, and firm. If the Caries penetrates deeper, stronger Remedies are required; such as the Powder or Essence of Euphorbium, prepared with the best Spirit of Wine, which powerfully destroy the Caries; or the Oils of Cloves, Cinnamon, or *Lignum Guaiacum*. These may be applied with a Pledget of Lint, and cover'd with dry Linen. Some use, in the same Manner; and with equal Success, other corrosive Medicines, such as the *Aqua Phagedænica*, or Spirit of Virriol, or of Sulphur; or a Solution of Mercury in *Aqua-fortis*, or the Spirit of Nitre, may be substituted in the room of all the rest. These we have enumerated as the principal Remedies used for this Purpose, without taking notice of those which are too weak for the Intention, or too strong to be admitted with Safety; such as Arsenic, or Sublimate Mercury in Substance. When, by this Method, an Exfoliation of the Bone is procured, you must proceed to incarn, and complete the Cure with Balsamics. Therefore, the next Dressings should consist of *Hungary Water*, or the Essences of Mastich, Myrrh, Amber, Aloes; also *Peruvian Balsam*, or Balsam of Capivi, or other Balsams of this Kind; covering the Whole with a Plaster, and proceeding as in the Cure of common Ulcers. See *ULCUS*. *Le Dran* has given us some curious Observations on the Caries of the Bones, especially in the *Cubitus*, *Obs.* 51, 52, 53; in the *Loins*, *Obs.* 69; after the Small-pox, *Obs.* 70; in the *Os Ilium*, *Obs.* 95; in the greater Trochanter, *Obs.* 97; in the Knee, *Obs.* 102, 103; and in the Leg, *Obs.* 104.

The Cure for the second Degree of Caries consists in perforating the Bone, after being laid bare, with the Perforator, or Instrument, described in *Tab.* XXVIII. *Fig.* 2. or *Fig.* 7. A; or *Tab.* XXXVI. *Fig.* 8. as far as the sound Part, in the same manner as is done after a Wound in the Cranium. The Dressings may consist either of dry Lint, or the balsamic Medicines above recommended. By these means, not only the morbid Part of the Bone will be exfoliated, but new Vessels will shoot into the small Perforations, which, coalescing with the neighbouring Flesh, form a new Covering for the Bone.

When it is certain, that the morbid Bone is black, with a Raspatory, or File, scrape away all the corrupted Part, till the Bone appears white, or red, and sound. *Celsus* advises this Operation to be done vigorously, for Expedition; otherwise little or nothing can be effected by it. *Scultetus* thinks the Raspatory should not be applied, till the Bone lies fairly exposed, or not till it begins to separate from the sound Part, and that the Bone should be dressed only with dry Lint, till this happens; which, however, is not a general Rule. Others, in particular Cases, use a Mallet and Chissel (see *Tab.* XXVIII. *Fig.* 10, 11.) for separating the corrupted Parts from the sound, with or without a Perforation.

But both these Methods have been generally disused by the modern Surgeons; tho' *Petit* affirms, that the best Method is to rasp the Bone, tho' the luxuriant Flesh should be continually sprouting, and afterwards to apply the actual Cautery. And in those Tumors of the Bone, now call'd *Spina Ventosa*, which refuse to yield to Medicine, he directs not only to make frequent small Perforations, but that the Tumor should be taken off with the Mallet and Chissel.

The fourth, which, tho' the oldest, is the readiest and most certain Method of Cure; especially in the higher Degrees of the Disorder; is perform'd by burning the morbid Part of the Bone; with the actual Cautery, having the Instrument adapted to the Place (see different Kind. in *Plate* XXIV.) But particular Caution must be observed, in this Operation, not to injure the adjacent Flesh; and soft Parts. For this Purpose, the Lips of the Ulcer should be held asunder by an Assistant; or, if they are too narrow, they should be widen'd with an absorbent swelling Tent, made of Gentian-root, or a Piece of Sponge; or, otherwise, they must be laid open by Incision, till the Bone fairly appears. The Bone should, likewise, be cleaned with dry Lint, and the fungous Flesh removed, before the hot Iron be applied, lest the Matter should extinguish it, or, at least, weaken its Action. If the Caries penetrates deeper, or spreads wider, so that it cannot be destroy'd by the first Cautery, more Applications must be made; either immediately, or some time after, when it appears that all the morbid Part of the Bone is not removed. If the Caries be wide, the first Application of the Cautery should be in the Middle; thence proceeding towards the Edges. No violent Pain attends this Operation, if the soft Parts are untouched, the Bones having no Sensation of Pain. But, in a Caries of the Bones of the Cranium, there would be great Danger, from this Operation, of injuring the Membranes of the Brain, or even the Brain itself; and a like Danger would arise, if it were perform'd on some of the soft, spongy Bones, as upon the Sternum, or carious Ribs; in both which Cases the Cautery should be avoided. Nor will the Carpus, Tarsus, and other spongy Bones of that Kind, admit of cauterizing; principally, because of the neighbouring Ligaments, Nerves, and Tendons, which can scarcely avoid being injured; and this would be follow'd with dangerous Consequences.

The diseased Part of the Bone being thus cauterized, the first Dressing must be dry Lint; or, if the Patient still feels a Sense of Heat in the Part, the Lint may be moisten'd with tepid Spirit of Wine. The Dressings may, afterwards, consist of the balsamic Remedies before recommended, till the Exfoliation succeeds; and the Vacuity will soon be supplied with new sound Flesh, which will be a Proof, that the Cure is completed. But where the Bone continues bare, or where the new Flesh is soft, lax, and spongy, and does not sufficiently adhere to the burnt Part of the Bone, or where the Bone remains discolour'd, the Disorder is evidently not extirpated. In these Circumstances, the new Flesh must be cut off, or abraded, or consumed with burnt Alum, and red Precipitate, or some other stronger corrosive Medicine; and then the actual Cautery may be repeated; or, according to the Circumstances of the Disorder, some of the other Methods, before recommended, may be used; otherwise, no permanent Cure can be expected.

If the Caries has penetrated even to the Marrow of the larger Bones, *Petit* advises, after the Example of *Meckren*, to make one, two, or more Perforations with the Trepan; and gives us a Case, where, after having used the actual Cautery, he perforated the *Tibia* thrice; and cured the Patient. But this Method can seldom be used in any other great Bone but the *Tibia*, because of the Obstruction occasion'd by the Thickness of the Flesh. He farther informs us, that the Os Pectoris, or Sternum, may be sometimes perforated in this Manner; which not only makes a Passage for the Discharge of the confined Matter, but, likewise, gives an Opportunity of immediately applying proper Remedies, even to the innermost Recesses of the Wound. But this Operation must be perform'd with the highest Caution and Deliberation upon the Sternum; because Respiration may be injured, and other violent Disorders produced. It is proper to observe here, that when the Caries extends to, or begins in, the Marrow of the Bones, (which is called a *Spina Ventosa*) it does not always proceed from an internal Cause, but sometimes from the Interior Vessels of the Bone being broke by external Violence; and the Blood, being discharged into the Cavity of the Bone, by degrees, degenerates into Pus, and corrodes the Bone. Thus a Caries is produced, which spreads from the Marrow to the exterior Parts.

If the Blackness, or Caries, extends to the other Side of the Bone, so that it seems thoroughly corrupted, *Celsus* advises to take it entirely out. If the lower Part is sound, only what is affected must be remov'd. If a Bone of the Head, of the Breast, or if a Rib, be carious, the Cautery will have no Effect, and it must, likewise, be cut out. This Operation must be expeditiously perform'd; for the Bone must be taken out as soon as it is laid bare, before any inflammatory Symptoms appear; by which means the whole Operation may be perform'd with greater Safety. When a Cartilage is carious, it must be scraped with a Knife, till no-



thing remains but what is found. I am obliged to *Celsus* for what I have here advanced, who treats on these Subjects better than any modern Writer.

Upon the Whole, we may conclude, that the Cure of a Caries of the Bone principally depends upon removing, in the most proper and expeditious Manner, all the corrupted Part of the Bone: And this, I have found by Experience, may be done in the gentlest Cases, by Spirit of Wine, and Hungary Water; in more violent Degrees of this Disorder, by a Solution of Mercury in Aqua-fortis; and in the most malignant, by the actual Cautey, or Amputation. The Cure of the Ulcer may be completed, as in other Ulcers, by the balsamic Remedies so often recommended.

If the Bone be considerably consumed by the Caries, or if it extends itself towards a Joint, as the Knee, or of the Hand, or Foot, so that the affected Part cannot be removed by Incision, Extraction, or Cautey, consistently with the Preservation of the rest of the Limb, there remains but one Remedy, for the Safety of Life itself, which is amputating the whole affected Member; otherwise the Patient leads a miserable Life, and, after being exhausted with Pain and Trouble, with a Loathing of Aliment, Watchings, a slight Fever, and a long wretched Train of Symptoms, will at last expire: But when only one Side of a large Bone, as the exterior Part of the Os Maxillæ, Humeri, Tibiæ, or Claviculæ, is corrupted; or a Part of a Rib, of the Ulna, Radius, or Fibula, and the like; not the whole Limb, or Bone, must be immediately removed, but only the carious Part, which may be done in the properest Manner, as we have already directed. When it happens, that more or less of the morbid Bone separates spontaneously from the rest; if it can be laid hold on, and the Ulcer be sufficiently wide, it should be extracted with the Fingers, or the Forceps; but, if the Orifice of the Ulcer be too small, it must be widen'd with the Knife. A remarkable Instance of this we have in *Meckren, Obs. Chir.* 69. where a large Portion of a corrupted Bone was taken out of the Arm; and another in *Ruyssch*, where it was extracted from the Tibia.

#### OF THE SPINA VENTOSA, PÆDARTHROCAE, AND EXOSTOSIS, WHICH MAY BE CALLED TUMORS OF THE BONES.

That Species of Corruption of the Bones, which proceeds from their internal Parts, which, by degrees, enlarges the Bone, and swells it into a Tumor, is now generally called a *Spina Ventosa*, and, by some, *Spina Ventositas*; tho' these Names were unknown to the Antients, who termed them *Sideratio*, *Gangrana*, or *Cancer Ossis*, and sometimes *Teredo*. Some French Authors use the Appellation *Exostosis*; though this Term more properly belongs to certain preternatural Eminences, or acuminated Excrescences, which arise from a Fracture, Contusion, or other Cause, and are often attended with a Caries; though I have frequently seen Bones with such Eminences, without any Appearance of a Caries. *Spina* seems to have been a Term applied to this Disorder, because it occasions a Pricking in the Flesh, like the Punctures of Thorns, producing very violent Pains; and the Epithet *Ventosa* is added, because, upon touching the Tumor, it seems to be fill'd with Wind, though this is seldom, or never, the Cause of the Distention. Afterwards some Authors, particularly *Pandolphinus*, barbarously distorted the Word into *Spina Ventositas*.

Children are often affected with this Disorder; and then, with *Severinus*, many denominate it *Pædarthrocæ*, from *παῖς*, a Boy; *ἄρθρον*, a Joint; and *κακόν*, an Evil; intimating, that this Disorder frequently appears about the Joints of Children, and oftener in them than in Adults, because the Bones of Children are more soft and spongy, and, consequently, more easily corroded by peccant Humours, and distended into Tumors, sometimes of a surprising Deformity. *Severinus* makes another Distinction between the *Spina Ventosa* and *Pædarthrocæ*; for the Tumors of the first Kind are frequently attended with Pain, Redness, and all the Appearances of Inflammation; but the *Pædarthrocæ* is accompanied with little or no Pain in the Beginning, as may be often observed in rickety Children. But these Names are now generally used promiscuously, as synonymous Terms for the same Distemper, and not improperly, as *Merklin* observes; for though this Disease, in Children, is, at first, attended with little or no Pain, yet the Pain increases with the Disease.

Other Names have been already mention'd, which agree better with the *Spina Ventosa*, than with the Caries properly so call'd; as, a *Cancer Ossis*, *Gangrana* or *Sphacelus Ossis*, *Sideratio Ossis*, frequently used by the Translators of *Hippocrates*; and, also, *Τάπιδον*, or *Teredo*, from its Resemblance to Wood eaten and consumed by a Species of Worms called *Teredos*. All these synonymous Terms of the *Spina Ventosa* may, probably, have been applied to different Degrees of that Disorder, which has been sufficiently proved by *Merklin*, in his Annotations upon *Pandolphinus*. The same Author has, also, demonstrated, that this Disease was not unknown to the Antients, as some have imagined. One Observation remains; that *Petrus*, in his Treatise on Diseases of the Bones, *Cap.* 16. comprehends all these Diseases, and

their Names, under that of *Exostosis*; and, at the same time, entirely omits those Names which were better known, and more commonly used. I shall principally use the Term *Spina Ventosa*, as it is now most generally received.

As these Diseases, especially their Difference and Degrees, have been generally imperfectly described, and as many Cases of this Kind have occur'd in my Practice, I intend to illustrate their Distinctions particularly, which may be very serviceable in promoting their Cure. A *Spina Ventosa* is a Corruption, Corrosion, or kind of Caries of the Bone, which is generally produced spontaneously, by some peccant Humours, and seldom arises from an external Cause. It begins not in the Surface of the Bone, but in its Laminæ, or Cells, or within its internal Cavity, proceeding towards the exterior Part, and affecting the Whole, or more or less of the Bone, spreading in Breadth, or rising into a Tumor, (see *Tab. XXXII. Fig. 16. A B*) which is frequently hard, and sometimes without Pain; sometimes it appears filled with Wind, and is attended with a greater or less Degree of a corrosive pungent Pain; at last it reddens, renders the Patient unable to move, and has a Train of other bad Symptoms; at last, the Bone is corroded, and the Skin, and other Integuments, which were at first sound, partake of the Corrosion, and break out into most malignant Ulcers. When these Tumors of the Bones are hard, without inflating the soft Parts, and without Redness, Inflammation, and Pain, as frequently occurs in rickety Subjects, they do not then so readily ulcerate, nor are attended with such malignant Symptoms, while they remain so. *Severinus* denominates this Species *Pædarthrocæ*, because Children are most subject to it, and in order to distinguish it from the *Spina Ventosa* of the *Arabians*. But when the Tumor is painful, red, and inflated, to which Children and Adults are equally liable, it is named *Spina Ventosa*, *Cancer*, or *Gangrana Ossis*, and *Teredo*. I call an *Exostosis*, a preternatural acute Eminence of the Bone, or any Excrescence of the Bone, with or without Corrosion. The *Spina Ventosa* differs from the Caries, as it is attended with a Tumor; and from the Rickets, because, in them, the Epiphyses or Extremities of the Bones are affected with deformed Tumors, without Pain or Corrosion.

These Disorders generally begin about the Extremities, Heads, or Epiphyses, of the larger Bones, where they are most tender and spongy, and where the morbid Matter may not only have sufficient Room to lodge in the cellular Substance, but where it will, also, meet with the least Resistance in softening and expanding the Parts. However, they often appear between the Laminæ, in the middle of these Bones, especially in the Tibia. Tophi, and Venereal Gummata, as they are called, in the Forehead, Cranium, and other Bones, especially the Tibia, as they owe their Origin to an internal Cause, may be included in this Species, though they are easily distinguished by nocturnal Pains. The *Spina Ventosa*, therefore, attacks the Bones of the Head, Face, Neck, and Breast; but most frequently those of the Feet, Arms, Fingers, Carpus, Metacarpus, Tarsus, and Metatarsus; and there is scarcely a Bone in the Body, but what is subject to it. Cases of this Kind may be seen in the Notes of *Merklin* upon *Pandolphinus*.

They are commonly produced spontaneously by internal Causes, as by acrimonious, scorbutic, rickety, or variolous Humours, but generally from a Venereal Taint; for, before this Disease appear'd in Europe, they were little known. However, both Reason and Experience inform us, that they sometimes proceed from external Causes, especially in an Habit inclinable to such Disorders; as from a Contusion, Fall, Fracture, Fissure, or other external Violence, by which the Vessels, internal Lamina, or Marrow of the Bones are injured or lacerated, the Humours are extravasated, and putrefy, corrupt and destroy the Marrow, and soften and corrode the Substance of the Bones. Hence arise Pains, Tumors, Ulcers, and Fistulas, both in the Bones, and external Parts.

The immediate Cause of this Distemper is a Collection or De-fluxion of a viscid and tough, or an acrid and corroding Humour, or an Inflammation in the Marrow, or in the cellular Substance of the Bones, which degenerates into an Abscess, and forms Ichor, or Pus. For, as these Humours can find no Evacuation, they stagnate in the Cavities of the Bones, where, in time, they gradually putrefy, become acrimonious, corrode and corrupt the neighbouring Parts, convert the Marrow into a similar Sanies, and, at last, attack and consume the Bone. This Collection of viscid and pituitous Humours, and Swelling of the Bone, sometimes happens without Pain, as in the *Pædarthrocæ*; but the Corrosion of the Parts can never happen without the most intense Pains, proceeding, according to the common Expression, from the inmost Marrow, which Pains are sometimes called *Osteocopi*. When, in the Beginning of this Disorder, it is confined to the interior Part of the Bone, the morbid Part feels no Increase of Pain by an external Touch, or Pressure; but, when the Pain becomes increased by the Touch, the Disease has extended itself to the exterior Parts of the Bone. When this happens, the Periosteum, and other adjacent Parts, together with the Substance of the Bone, and the cellular Coat, are tumefied: Whence arises a Sensation, as if the Parts were inflated. When this Tumor is opened



opened by Incision, or, as it frequently happens, spontaneously, if the morbid Part is exposed to View, it will appear like a Sponge, or a Pumice-stone, full of little Holes, as in the Caries; and from what has been said, the Resemblance of these two Diseases, their Signs and Distinctions, may easily be discovered.

The Spina Ventosa, strictly so called, may be properly divided into three Species: 1. When the Osteocopi, or Pains in the Marrow of the Bone, are incessant, so as to deprive the Patient of Sleep, but without either Tumor, or external Pain; in this State the Disease is confined to the interior Part of the Bone. 2. When these Pains either continue, or cease, and a Tumor gradually appears upon the Bone either harder or softer, and, as it were, inflated, attended with external Pain, which sometimes abates, and sometimes increases. 3. When this Tumor induces an Abscess, which either bursts spontaneously, or is opened by Incision, discharging a fetid Ichor, or a purulent Matter smelling like rancid Butter, or Bacon, this Efflux of Matter continues more or less, as in the carious Ulcer; and that Kind of Ulcer is produced, which the Antients frequently called an Ulcer with Caries in the Bones. This Species may be called an inveterate Spina Ventosa, and the first an incipient or recent one.

A Pædarthrocace generally begins with a Swelling of the Bone, without any Pain, or external Cause; but, if it continues long, it is often attended with Pain and Inflammation, and at last with an Abscess, Ulcer, or Caries, like the Spina Ventosa, especially about the Joints and Extremities of the Bones. Hence there appears some Reason for reckoning a Pædarthrocace a distinct Disease; which, however, if not timely prevented, will degenerate into a Spina Ventosa; so that they seem to differ only in Degree.

From what has been now advanced, and what we before delivered of the Prognostic of the Caries, it will be no difficult Matter to understand and foretel the Consequences of these Disorders. For when it appears, that the present and corrupt acrimonious Matter is lodged in the Cavity, Laminæ, or Cells of the Bone, which Nature is unable spontaneously to discharge, and which can hardly be evacuated by Art, it must necessarily follow, unless prevented by timely Assistance, that the adjacent Parts will be corroded and corrupted, till at last the Bone itself is altogether destroy'd, so that there can be only one Method left of preserving the Patient, by the Amputation of the whole Limb. What is still worse, if the Disorder proceeds from a vitiated State of the Blood, it is often so malignant, than when it has seized one Part, the Arm for Instance, when this is extirpated, it will then attack the other Arm in the same manner, as in cancerous Affections; but this may be prevented by purifying and correcting the Blood by a proper Regimen and Remedies. The Pædarthrocace, and mildest Degree of the Spina Ventosa, frequently yield to proper Medicines. But the Cure will be difficult, in proportion to the Inveteracy of the Disease, the Progress it has made, the Weakness of the Patient, and the Corruption of the Blood, joined with other violent Symptoms. Sometimes it becomes irremediable, and, the Strength of the Patient being exhausted, he is, as it were, consumed by a slight Fever, and he dies of an inveterate Caries.

There are two Methods of curing a Spina Ventosa, adapted to the different States of the Disease: 1. In the two first or milder Degrees, if the Patient be an Adult, he must daily use, for correcting the Blood, a Decoction of the Woods, as it is commonly called, as of the Roots of Sarsaparilla, China, Scorzoneræ, and the Woods of Sassafras, Guaiacum, and Juniper, drinking each time eight, ten, or twelve Ounces, according to the Strength of the Patient, taking it warm like Tea, or Coffee. Let him drink this Quantity every Morning in Bed, giving him, in the first Draught, fifty or sixty Drops of the Essence of the Woods, or of white Burner, or the like, endeavouring to raise a gentle Sweat, that they may thoroughly penetrate the smaller Vessels, or even the bony Fibres, and expel or correct the peccant Humours: They, likewise, greatly promote the Digestion and Diffusion of Stagnated Humours and Tumors. 2. This Intention will be greatly forwarded by fumigating, several times a Day, the affected Parts, with the Steam from Decoctions of resolvent or aromatic Herbs. 3. In the intermediate Times, let the Part be rubbed twice a Day with a Mercurial Ointment, and apply to it a Mercurial Plaster. 4. Mercurial Remedies should, likewise, be prescribed inwardly, once in weakly Constitutions, or twice in more robust Habits, in order to raise a gentle Salivation, or not, according to the different Degrees of the Disorder, or State of the Patient: For Experience has convinced me, that nothing can be effected in the Cure of this Disease by other Remedies alone, without the Assistance of Mercurials; which makes it the more probable, that this Distemper is either contracted by a Venereal Infection, or is very nearly allied to it. When, therefore, this Method has been continued some Weeks, (for a short Time is of no Service) the first Degree of this Disorder may be removed; and even in the second Degree, where the osseous Tumors are already formed, they may be digested, or dissolved, or reduced to such a State, that they may continue without increasing, without Pain, or without any great Inconvenience to the Patient. This I have often seen happily obtained, when a

Discussion could not be procured, especially when the Patient used a regular and moderate Diet, living upon Broths, Vegetables, and the tenderest Sorts of Flesh, thereby tempering and sweetening the Blood; and using, for common Drink, small Decoctions of the Roots and Woods above-named, or of Hartshorn, Barley, Oats, and the like watery, soft, thin Liquids.

The same Method is to be observed in the Cure of the Pædarthrocace, or Tumors in the Bones of Children, without any, or, at least, much Pain; exhibiting, at the same time, Medicines for gently opening the Belly, principally prepared with Mercurius Dulcis. If this Disorder is accompanied with the Rickets, Remedies adapted to the Rickets must be prudently exhibited, and frequent Motion and Exercise must be used.

But if either of these Disorders are become so obstinate, as not to yield to the Medicines we have already advised; if the Pains and Tumors of the Bone are increased; if an Abscess appears, and the entire Destruction of the Bone be threatened; you must, if the Abscess be not already burst, lay the Bone bare in the most proper Place, which is generally the lowest, and most painful, without staying for Maturation; or, if the Orifice be too small, after the Abscess has burst, it must, also, be widened by Incisions, or, in the Timorous, by the Caustic. Then, with the small Perforator, (in *Tab. XXVIII. Fig. 2. or 7.*) penetrate several times into the Marrow of the Bone, in order to open a Passage for the morbid Matter. But, where these small Perforations are not sufficient for discharging the Sanies, then pierce the Bone with the Trepan, as was before directed in the Cure of the Caries; by which means the Matter will not only have a freer Passage, but Medicines for cleansing and healing the Part may more readily be applied. After these Operations, the Decoctions and Essences of the Woods, with antimonial and mild Mercurial Medicines, ought to be prescribed internally, and detergent and balsamic Remedies ought to be outwardly applied; such as the Decoction of Agrimony, Sanicle, St. John's-wort, or Birthwort, with Honey of Roses, and Essence of Myrrh and Aloes, for detaching the Ulcer; or Mercurius Dulcis dissolved in Plantain-water, or Lime-water. Afterwards the Dressings may consist of the Essence just now recommended, or the Essence of Mastic or Amber, spread upon Lint, covering all with a Mercurial, or other proper Plaster, till the Ulcer be healed. Sometimes the actual Caustery, if it can be conveniently applied, is not improper for rooting out the Disorder, when it is confined to the Lamina, especially if it can be conveniently apply'd; otherwise Abrasion may be used, tho' this Operation seems better adapted to the Caries, than the Spina Ventosa.

But if all these Remedies are ineffectual, and the Part be so much corroded and destroyed, that it cannot be preserved, there remains but one Remedy of saving the Patient, which is Amputation; and this may be performed in different manners, according to the different Circumstances of the morbid Part. When the Disorder is situated in the small Bones, as in the Carpus, Tarsus, Metacarpus, or Metatarsus, or in the Finger, there is no Necessity of extirpating the whole Finger, Hand, or Foot, but only of extracting the small putrefied Bone. Thus, when the Bone at the End of the Finger, or even that of the middle Phalanx, is corrupted, I have extracted the foul Bone, and preserved the sound Part of the Finger. Thus, from a Boy of ten Years of Age, who had the metatarsal Bone, which supports the great Toe, corrupted, the Toe itself remaining unaffected, I extracted only so much of the Bone as was corrupted, leaving the sound and anterior Part behind, and healed the Wound with Balsamics; and the Boy, afterwards, walked as well as formerly. But when the entire Finger, or only the first Bone of it, has been corrupted, I have amputated the Whole. But when a large Bone of the Shoulder, Thigh, or Leg, or when any of the Joints in the Arm, Knee, or Foot, are affected, no Cure can be expected, except by extirpating the whole corrupted Part, with all the inferior Part of the Limbs, making the Amputation in the sound Part above.

In some Species of the Spina Ventosa, when the Tumors will not yield to the Remedies already proposed, to which the Hand can be readily admitted, *Petie* advises to lay the Bone bare by a crucial Incision, and to cut off the Extremities of the four Angles of the Shin, and then to dress with dry Lint. The next Day he orders the osseous Tumor to be pierced with the Perforator, and the Holes to be made so near one another, and so numerous, as to represent a Sieve, and then to extirpate the whole Tumor with the Chissel and Mallet. He afterwards fills up the Wound with dry Lint; and, that the diseased Part may sooner separate from the sound, he orders a Solution of Mercury in Aqua fortis to be apply'd to the corrupted Part, till it be wholly removed: This Method he highly recommends, and prefers it, in my Opinion, not unjustly, to every other Remedy in these Cases, and even to the actual Caustery, if the Corruption be not too deeply situated.

When an acute Eminence, or preternatural Excrecence, appears upon a Bone, which is properly called an Exostosis, and is accompanied with no Trouble, Pain, or Deformity, nor any Symptoms of a Caries, or Spina Ventosa, in such Cases, no Cure, in my Opinion, should be attempted. For the Remedy would not



not only be worse than the Disease, but by laying the Bone bare, a Caries, or other Inconveniences, might be occasioned. On the contrary, if it produces any Deformity, Impediment of Action, Pain, or other Mischief, it may be removed by the Methods already prescribed. Various Cases of the Caries, Spina Venosa, and Exostosis, are given by *Chefelden*, in his *Osteography*, from *Tab. XLI. to the End*; and *Ruyssch*, in his *Observat. p. 94.* and, in his *Thesaur. Anat. 8. Tab. III. and Thesaur. 10. Tab. II. Heister.*

OS. The Mouth.

#### OF THE CANCER OF THE LIPS, AND MOUTH.

Cancers of the Lips, like other Cancers, are either occult, or open. An occult Cancer happens, when a Tumor appears in the Lip, attended with Hardness, Pain, and Heat. An open Cancer is, when that Tumor degenerates to an Ulcer; or when a cancerous, phagedenic, and fetid Ulcer is produced in the Lip without any previous Tumor; discharging an acrimonious Saniem, of a most disagreeable Smell, which not only corrodes the Lip, but frequently the whole Face in a most miserable manner, and is for the most part situated in the under Lip. See *Tab. XLI. Fig. 11. a a a.*

This, like other Cancers, is produced by a certain Acrimony of the Blood, and an Obstruction of the spongy Glands of the Lips. Hence a livid painful Tumor, or Wart, which by degrees degenerates into a malignant Ulcer, or open Cancer, quickly dividing the Lip, at first like a small Fissure, which gradually widens. See *Fig. 11.* This Disorder may likewise arise from an accidental Bite, Blow, Puncture, Fall, or from the Lip being affected with an acute Pain in the Teeth.

As little can be effected by Medicine in the Cure of this Disorder, recourse must be had to the Knife. The Incision should be made without Delay; otherwise the Distemper would spread, and produce large Tumors in the Neck and Fauces, so as even to strangle the Patient. But, when the Incision is timely made, there may be some Hopes of a Cure; especially, if the corrupted Blood be corrected by proper Medicines, a Task which is, indeed, difficult to be performed; upon which Account a Relapse generally ensues. This most pernicious Disease is more easily cured in young than in old People, and more easily when it proceeds from an external Cause, than from the peccant Quality of the Blood alone.

The Cure must be adapted to the different States of the Disease. 1. When a small Fissure appears on the upper Part of the Lip, like an Ulcuscle, attended with Heat and Pain, and is produced by the Coldness of the Air, anoint it with the Honey of Roses, and Peruvian Balsam, or Ointment of Lead or Diapompholygos, mixed with a little Mercury; and afterwards apply a Plaster of Lead, or a leaden Plate, rubbed with Quick-silver, to the Part, till the Disorder be entirely removed. In the mean time, a proper Diet, with Medicines for purifying the Blood, ought not to be neglected. I cured a young Woman of this Disorder, by the Application of the Juice of rotten Apples mixed with Mercurius Dulcis, and the Use of proper internal Medicines. In *Ephemerid. Nat. Curios. Cent. 6. Obs. 43.* we read of Cancers of this kind being cured by Roman Vitriol, with or without the Oil of Olives. But when neither these nor the like Medicines have any Effect, and the Disorder increases, the readiest Remedy is, with the Knife, or Scissars, to cut out of the Lip all the indurated or cancerous Part, by two or three Incisions, observing rather to take away some of the sound Flesh, than to leave any of the Cancer behind. The Lips of the Wound may be united with two or three Pins, in the same manner as in the Hare-lip; or, if the Fissure be but small, the knotted Suture will be sufficient. This Method I successfully took with the Cancer represented in *Tab. XLI. Fig. 11.*

2. But if the Cancer has not degenerated into an Ulcer, and the Lips are infested with an hard troublesome Tumor near the Skin, some Physicians have advised to destroy the Tumor by corrosive Medicines, afterwards healing up the Wound. But though these Remedies may not be improper, when the Disorder proceeds from an external Cause, or when the Tumor is encysted; yet, as the Application of Corrosives in Cancers is generally dangerous, I would prefer, with the wisest Physicians, Incision with the Knife, or Scissars, which may be performed two ways, according to the Nature of the Tumor. If the Tumor is moveable, open the Skin with the Knife; and, after freeing the Tubercle from its Adhesions, by the Knife, or Scissars, the Wound may be healed in the usual Manner; but if the Tumor is fix'd, immoveable, and firmly adheres to the Skin, all that Part of the Lip which contains it, must be cut away, and the Wound must be treated with the Suture, as before directed. Whatever Method of Cure be used, a regular Course of Life, and proper Regimen, must not only be used, but, likewise, internal Medicines, for removing the vicious Affections of the Blood, lessening its Quantity, and destroying its Acrimony, in order to prevent a Relapse, which often happens. Consult *Scultetus, le Dron, and Garangeor.*

Os LEONIS. See ANTIRRHINUM.

OSATIS. The same as ISATIS. Woad.

OSCHEALIS HERNIA. A Scrotal Rupture. See HERNIA.

OSCEDO. A Propensity to Oscitation. Sometimes it imports the same as APHTHÆ. *Castellus.*

OSCHEOCELE. A Scrotal Rupture. See HERNIA.

OSCHEON, *ὄσχον*. The Scrotum. The *Amphidium*, or Os Uteri, is, also, thus called by *Galen*.

OSCITATIO. Oscitation is performed by expanding, at one and the same time, almost all the Muscles capable of spontaneous Motion; by greatly extending the Lungs, by drawing in gradually and slowly a large Quantity of Air, and gradually and slowly breathing it out, after it has been retained for some time, and relaxed; and then restoring the Muscles to their natural State. Hence, the Effect of Oscitation, or Yawning, is to move, accelerate, and equally distribute, all the Humours through all the Vessels of the Body, and, consequently, to qualify the Muscles and Organs of Sensation for their various Functions. *Boerhaav. Institut.*

A great deal is insensibly discharged, when Nature endeavours to get rid of the retained perspirable Matter; by yawning, and stretching of the Limbs.

To these a Person is most inclined just after Sleep, because, a greater Quantity going off by the Pores of the Skin, than at other times, whensoever a Person wakes, the increased Contraction that then happens, closes a great deal of the perspirable Matter in the cutaneous Passages, which will continually give such Irritations, as excite Yawning and Stretching; and such Motions, by shaking the Membranes of the whole Body, and shifting the Contacts of their Fibres, and the inclosed Matter, by degrees throw it off.

Hence we see the Reason, why healthful strong People are most inclined to such Motions, because they perspire most in time of Sleep, and, therefore, have more of the perspirable Matter to lodge in the Pores, and greater Irritations thereunto.

I cannot here omit the vast Advantages of some little Exercises just after waking in the Morning. At that time, by the Quantity which is gone off during Sleep, the Body is much emptied and lessened, and all the Fibres invigorated with a fresh Stock of Spirits: That Firmness, therefore, and due Tension of the Solids, which are so necessary to a good State of Health, are then most easy to be obtained, because the Fibres at that time may most conveniently be drawn up, and hardened, by any such means as gently contracts them, and at the same time shakes off their grossest and most useless Moistures. Now that Exercise contracts the Solids nothing is more manifest; and, therefore, nothing can be of greater Service, than to use it at these times. But such is the best, as gives a gentle Motion to all the Parts, especially the Membranes, and cutaneous Fibres; and this can be effected no surer Way than I know of, than by the Flesh brush, which ought to be used just before rising, and putting on any Cloaths; and if now-and-then the Person would leap about, and stretch his Arms with Weights in each Hand, it would wonderfully promote the good Ends which are to be procured hereby. By this means all that Matter which is sufficiently digested for Perspiration, would be drawn out, and the Solids have no manner of Weight left upon them but the necessary Fluids, by which they would be enabled to perform their Offices with Ease and Vigour; and as in a Clock or Watch new cleaned, the several Motions of the whole Machine would go on with great Regularity.

Yawning, and stretching the Limbs after Sleep, is a Sign the Body has perspired very well.

Stretching and yawning, after Sleep, is occasioned by a great Plenty of perfectly well-digested perspirable Matter, which is in Readiness to be thrown off.

The Body, by yawning and stretching, in the Space of half an Hour, perspires more than in three Hours at any other time.

Such Extensions in general, or of any particular Part, proceed from some gentle and pleasing Irritations of the muscular Fibres: And that such Irritations, or gentle Vellications, are occasioned by a great Quantity of the digested perspirable Matter hanging about the Surface and extreme Parts of the Body, and not thoroughly discharged, is no difficult Matter to conceive. For it appearing, that, in time of Sleep, there is a continual Course and Tendency of a fine thoroughly-digested Matter towards the Circumference, which is discharged thro' the cutaneous Pores; and that, during Sleep, likewise, the Nerves are in a State of Relaxation; it cannot but happen, that when a Person awakes, both the Course of those Streams will be considerably diverted, and the Fibres something more contracted; and, consequently, the perspirable Matter just passing, detained at the Extremities of the excretory Ducts; which, as the Sleep is still shaken off, and the Solids are more and more drawn up, will be squeezed so close, as at last to give those Vellications to the small Fibres composing those Glandules where they stick; and inasmuch that sometimes the Muscles themselves are drawn into Consent, and provoked to those Tensions and Concussions, by which they excite the Stretchings and Yawnings, to which at times we find ourselves inclined. And these Inclinations remain, until all that Matter is thoroughly shook off; which, by this means, is loosed from its small Entanglement,



ment, and dispersed as Water is shaken off a wet Sheet; and this is the Reason why Perspiration is so large at those times. *Sanctorius.*

OSEUS, in *Paracelsus*, is the *Scrotum*.

OSMUNDA.

The Characters are;

It produces no Flowers, but bears its Fruit in Clusters.

*Boerhaave* mentions two Species of *Osmunda*; which are,

1. *Osmunda vulgaris*; & *palustris*. *Tourn. Inst.* 547. *Boerb. Ind. A.* 27. *Filix florida*, *Osmunda regalis*. *Offic. Filix florida* sive *Osmunda regalis*. *Ger. Emac.* 1131. *Raii Hist.* 1. 151. *Filix ramosa non dentata, florida*. *C. B. P.* 357. *Filix floribus insignis*. *J. B.* 3. 736. *Osmunda regalis*. *Ger.* 971. *Osmunda regalis sive Filix florida*. *Park.* 1038. OSMUND ROYAL.

This is the biggest of our *English* Ferns, sending forth several large branched Leaves, whose long broad Pinnulæ are not at all indented about the Edges like the other Ferns, they are of a light yellow Colour; among these arise several Stalks, which have the like Leaves growing on them on their lower Parts, but towards the Tops they are full of round, slender, seed-bearing, curled Heads, an Inch or more long when ripe, of a brown Colour, covered with small dusty Seed. These appear in *June*, and ripen in *July*. The Root consists of a great Number of small, long, round Parts, matted together, blackish on the Outside, and green within, covered over with small Fibres. It grows in marshy, boggy Places, particularly in a Bog, at the Backside of *Woolwich*, near the Warren.

The Roots are the only Part used, are accounted good for Obstructions of the Liver and Spleen, and particularly esteemed for the Rickets in Children, as, also, for Ruptures, Wounds and Bruises. *Miller's Bot. Off.*

*Labelius* informs us, that the Root of this Plant is highly beneficial in the Cure of Hernias and Ulcers; that it is serviceable in Colics, and Disorders of the Spleen; and that it is somewhat hot, acrid, and of an agreeable Smell.

The middle and whitish Part of the Root is thought highly efficacious not only in recent Wounds, but, also, where the Patients are stab'd, have any of their Vessels ruptured, or have fallen from Eminences, when boiled or bruised, and drank with some Liquor.

The Root of this Plant is thought an effectual Cure for the Rickets, without any other Medicine. In the Rickets, says Doctor *Bowles*, I generally use, with Success, Conserve of Asparagus, or of the tender Buds of Osmund-royal, and the male Fern, or those of Milt-waste, and Hart's-tongue. *Raii Hist. Plant.*

2. *Osmunda*; *foliis lunatis*. *Tourn. Inst.* 547. *Boerb. Ind. A.* 27. *Lunaria*. *Offic. Lunaria minor*. *Ger.* 328. *Emac.* 405. *Park.* 507. *Raii Hist.* 1. 127. *Synop.* 44. *Lunaria racemosa minor, vel vulgaris*. *C. B. P.* 354. *Lunaria Botrytis*. *J. B.* 3. 709. MOON-WORT.

This is a small low Plant, seldom growing to be above three or four Inches high, having only one Leaf, which is pinnated or cut into several half-round Sections, standing about the Middle of the Stalk, which has, towards the Top, several Bunches of small globular Heads, in which is contained its dusty Seed. It grows in dry hilly Pastures, as in the Warren by *Woolwich* in *Kent*, being in its Perfection in *May*.

Some have a great Opinion of this Plant, and esteem it good for all Sorts of Wounds. The People in *Wales* make an Ointment of it, which, apply'd to the Reins, they reckon a very sovereign Remedy for the Bloody Flux. It is but little used in the Shops. *Miller's Bot. Off.*

According to Doctor *Eales*, it stops the Menstrues, and, according to *Bobart*, puts a Stop to the *Fluor albus*. *Dale.*

OSOROR. Opium.

OSPRION, ὄσπριον. A Bean; and all Sort of Puls.

OSSA *Paralleli*. An universal Medicine in the Gout. *Rulandus.*

OSSIFICATION. Ossification; that is, the Formation of a Bone. It is either natural, or morbid, as when any Part, which ought to be soft and flexible, becomes bony.

However solid and compact adult Bones are, yet they were once Cartilages, Membranes, and even a mere Jelly. This needs no further Proof, than repeated Observations of Embryos, when dissected: And how much more tender must the Bones be before that time, when neither Knife or Eye is capable to discover the least Rudiments of them? By degrees they become more solid, then assume the Nature of Gristles, and at last ossify: Which is brought about partly by the Bones being, more than any other Parts, exposed to the strong Pressure of the great Weights they support, to the violent Contraction of the Muscles fixed to them, and to the Force of the Parts they contain; which endeavour to make way for their own further Growth. By all this pressing Force, the solid Fibres and Vessels of the Bones are thrust closer, and such Particles of the Fluids, conveyed in these Vessels, as are fit to be united to the Fibres, are sooner and more firmly incorporated with them; whilst the remaining Fluids are forcibly driven out, by the Veins, to be mixed with the Mass of Blood. In consequence of which, we observe, that gradually, as the Bones harden, the proportional Number and Largeness of their Vessels decrease. From

which, again, we can understand one Reason for the Bones of young Creatures sooner reuniting after a Fracture, than those of old. From this, also, we can deduce the Cause of Horses, Bullocks, and other young Creatures of a large Breed, decaying in their Size, when put too soon to hard Labour.

That the Ossifying of Bones depends much on such a Pressure, seems to be evinced from the frequent Examples we meet with of other Parts turning bony, when long exposed to the compressing Force of the surrounding Parts; or when they are subjected to the like Circumstances by their own frequent and violent Contraction; witness the Bones found so frequently near the Bone of the Heart in some old Men, and in several other Creatures: And the muscular Substance of the Heart has been ossified in such Instances of which *Chefelden* and *Garengeot* give us; and the Arteries of old Men often become bony. The Cartilages of the Larynx are generally ossified in Adults. In Beasts of Burden, the Cartilages between the Vertebrae of the Back and Loins very often change into complete Bones, and, being intimately united with the Vertebrae, the Whole appears one continued Bone: Nor is the Periosteum exempted from such an Induration; for *Peyer* tells us, he divided this Membrane into several bony Plates.

To confirm this Argument still further, we may observe, that Bones begin their Ossification at the Places, where they are most expos'd to these Causes, viz. in the cylindrical Bones from a middle Ring; and, in the broad ones, at or near their Centre, from one or more distinct Points: The Reason of which is, that these Parts are contiguous to the Bellies of the Muscles annexed to the Bones, where the Swelling of these moving Powers are the greatest. What the Effects of this may be, let any judge, who view some of the Bones, as the Scapula and Ilium, which are on each Side covered with Muscles; how compact and thin they are in Adults, where the Bellies of the Muscles were lodged, whereas in Children they are thicker. But this being the middle Part of these Bones, where the greatest Number of Fibres is, this particular Place would have been much thicker in Adults, had not this forcible Cause been applied, which has not had such Effects in Children, whose Muscles have not been much exercised. Besides, if we allow, that all the Parts of a Bone are equally increased by the constant Supply of new Particles, each Fibre, and every Particle of a Fibre, will endeavour to make way for its own Growth, by pushing the one next to it; and consequently by far the greatest Pressure will be on the Middle, whereby the Particles there will be made most firm: And here it is, that Bones begin their Ossification. Lastly, the Pulsation of the medullary Arteries, which enter the Bones near to this middle Part, may, as Authors have alleged, contribute, perhaps, somewhat to this Induration.

From the Effects of Pressure only it is, that we can account for the Bones of old People having their Sides set much thinner; yet more dense and solid, while the Cavities are so much larger than in young Bones; and for the Prints of Muscles, Vessels, &c. being so much stronger marked on the Surfaces of Bones, according to their Ages, if they belong to People of near the same Condition of Life, or if they belong to those of the same Age, according to the Labour or Exercise they have had; the Bones of old People, and of those accustomed to Labour, being more strongly impressed than those of young Folks, and of such who have lived in Indolence and Inactivity.

It is, also, probable, that Ossification depends on the Vessels of the Bones being so disposed, and of such Diameters, as to separate a Liquor, which may easily, when deprived of its thinner Parts, turn into a bony Substance; as it seems plain from the Observation of the callous Matter separated after Fractures and Ulcers, where Part of the Bone is taken out; for, in these Cases, this Liquor hardens, and often cements the two Extremities of a Bone, though at a good Distance from each other; as I have seen happen in two or three Cases, and of which there are Abundance of very remarkable Instances handed down by Authors. One, scarce inferior to any of them, was communicated to me by Mr. *Laing*, Surgeon at *Jedburgh*, and is now published, of a Child, whose Tibia he took out, leaving little more than the Epiphyses at each Extremity; all that he took away of the Bone was supplied by a bony Substance, on which his Patient walks easily and firmly.

Perhaps both the Causes of Ossification above-mentioned may be assisted by the Nature of the Climate People live in, and the Food they use: Whence, in hot Countries, the Inhabitants sooner come to their Height of Stature, than in the Northerly cold Regions: And thence seems to have arisen the common Practice among the Ladies, of making Puppies drink Brandy, or Spirit of Wine, and of bathing them in these Liquors, to prevent their growing big. And it has been observed, that much Use of such Spirits has occasioned Parts naturally soft to petrify in some, and to ossify in other People of no great Age; witness the Causes related by *Littre* and *Geoffroy*.

Whoever is desirous to know, in what Time and Order each Bone, and its several Parts, begin to assume a bony Nature, let him consult *Kerckringius*, who gives us the Delineations of Abortions from three Days after Conception, and traces the Ossification of the Bones from three Weeks and a Month, till the



**Time of the Birth :** To whom should be added *Coiterus* and *Eys-sonius*. A pretty complete Account of this Subject might also be collected out of *Ruyfch's* Works, where some of the Mistakes committed by former Authors are corrected, and several more Particulars, to make the Account of the Osteogonia more accurate, have been since added by *Nesbitt* and *Albinus*. *Monro's Osteology*.

**OSSIFRAGA** is the same as **Osteocolla**.

**OSSIFRAGUS.** The Ossifrage. The Stomach of this Bird, taken internally, is reported to break the Stone. *Dioscorides*, L. 2. C. 58.

**OSSISANA.** A sandy Stone, said to be found near *Spire* and *Darmstadt*, celebrated for conglutinating fractur'd Bones.

**OSTAGRA**, from *ὄστρον*, a Bone; and *ἄγροα*, a thing laid hold of. A Forceps, to take out Bones with.

**Osteocolla.** *Offic. Schrod.* 355. *Dougl. Ind.* 66. *Worm.* 53. *Charlt. Foss.* 22. *Osteocollus.* *Aldrov. Mus. Metall.* 626. *Schw.* 387. *Osteocollus crustaceus.* *Gesn. de Rar. Foss.* 30. *Ossifragus Lapis.* *Boet.* 416. **THE BONE-BINDER.**

This is a Substance of a seemingly middle Nature between Earth and Stone, white, friable, crustaceous, fabulous; in Figure resembling a Bone, and growing out of sandy Places, and other stony Soils: It is highly commended for the speedy Conglutination of Bones, because it quickly affords Matter for a proper Callus; and consequently hastens the Conglutination. *Schrod.* It also stops the Fluor albus, and removes intermittent Fevers. But *Hildanus*, in *Cent.* 3. *Obs.* 90. justly cautions us to be very circumspect in exhibiting it to young Persons furnished with a laudable Habit of Body, because it generally leaves an unseemly Scar; for which Reason he thinks it is only to be used in old and extenuated Patients, whose native Heat is weak and languid. According to *Wormius*, they in some Shops sell for the Bone-binder, a Species of the Galactites, which is white, porous, smooth, soft, easily dissoluble into a Liquor, and of a saline Taste. *Dale.*

I find, that Osteocolla grows in a sandy, yet not gravelly Soil, and not at all (that I know) in any rich or clayey Ground. It shoots down two Mens Depth under-ground; the Branches most commonly growing straight up; yet, sometimes, also, they spread sideways. The Branches are some of them thicker, some slenderer; and the farther they are distant from the common Stem, the thinner they are; the thickest Stalk usually equalling the Thickness of an ordinary Arm or Leg, and the Branches the Thickness of a little Finger.

Upon the Sand, which is here [at *Frankfort* on the *Oder*] every-where yellowish, there appears a whitish fatty Sand, which, if it be dug into, hath under it a dark, fatty, and (how hot and dry soever the Sand be) a somewhat moist and putrid Matter, like rotten Wood; which Matter spreads itself here-and-there in the Earth, just as the Osteocolla itself does, and is called, by those whom I have employed to look for it, the Flower of this Substance. The Osteocolla, being thus found, is altogether soft, yet rather friable than ductile: Wherefore, if one has the Curiosity of getting out of the Ground a whole Piece of it with its Branches, he must very carefully remove the Sand every Way from it, and then let it be so awhile; its Quality being, that, remaining exposed to the Sun for half an Hour, or somewhat longer, it grows to that Hardness, as it is found in the Shops.

It seems to be a kind of Marble, or to have great Affinity with it, of which we here have, also, great Store, yet not near those Places, where I have found Osteocolla. It, also, requires much Time to come to Maturity; which appears from hence, that, in the very same Place where I digged some of it last Year, I this Year found more; yet with this Difference, that the first grew hard, after the Manner before described, but the last remains still soft and friable, though now in the fifth Month.

The Cause of its being divided into so many Branches, I conjecture to be from the Roots, which spread themselves here-and-there in the Earth, so that the Matter gathers and settles itself about them; and afterwards, according to the Division of the Roots, acquires a pinnate Form and Appearance. Whence it seems also to proceed, that through the Middle of the Osteocolla there always passes a dark Line, which is thought to be a Piece of the Root. And it often happens, that the Stroke loses itself by little and little, and the Osteocolla in the Middle grows clear; which comes to pass, when the Root, by the Corruption begun in the Osteocolla, is reduced to Powder. Yet have I found a Place hereabout, where the Osteocolla was not hollow at all; but there I observed, that, instead of setting about a big Root, it had gathered itself about many small Fibres: Whence, also, this Sort had acquired Pores through its whole Length, but no Cavity like the other. *Philosophical Transactions*.

**Osteocopus**, from *ὄστρον*, a Bone, and *κόπος*, Labour, or Uneasiness. That Sort of Pain and Uneasiness, excited by too much Motion, which is called a Weaniness of the Bones.

**Osteogenica.** Medicines which promote the Generation of a Callus.

**Ostiarus.** The Pylorus.

**Ostiology.** Osteology; that is, the Doctrine relative

to the Bones; or a Description of the Bones.

**OSTRACITES.** *Offic. Ostracites.* *Boer. de Lap.* 393. *Lacr. de Lap.* 124. *Gesn. de Lap.* 84. *Plot. Hist.* Oxon. 105. *Morton. Northampt.* 189. *Ostracites maximus rugosus et asper.* *List. Hist. A. A.* 236. *An. n.* 37. *Ejuld. Hist. Conch. App. Lib.* 3. *Ostracites maximus conglobator admodum crassus in argillaceis delitescens.* *Luid. Lithogr.* 26. *N.* 471. *Ostracites rugosus et undatus, mediocris subcinereus, subrotundus.* *Lang. Hist. Lap. Fig.* 151. *Tab.* 47. 2. *Ostrea Læbris non crenatis.* *Woodw. Art.* 2. 43. **HOBGOBLINS CLAW.**

Women use the Ostracites instead of a Pumice-stone, to take off Hairs. A Dram of it, taken in Wine, stops the Course of the Menstrues; and two Drams thereof, exhibited four Days after the menstrual Purgation, prevent Conception. Applied outwardly, it is effectual against spreading Ulcers, and Inflammations of the Breasts. *Dioscorides, Lib.* 5. *Cap.* 165. Taken with Chamomile-flowers, it is esteemed an excellent Lithoniptic. *Dale.*

**OSTRITES.** A Name for the Osteocolla.

**OSTRITIUM, or OSTRUTIUM.** Names for the *Imperatoria*, Masterwort.

**OSTRYA.** The same as **OSTRYS**.

**OSTRYS.** *Offic. Ostrys sive Ostria.* *Park. Theat.* 1406. *Ostrya ulmo similis, fructu in umbilicis foietis.* *C. B. P.* 427. *Raii Hist.* 2. 1428. *Synop.* 3. 451. *Tragus sepium vulgo Ostrys Theophrasti.* *J. B.* 2. 146. *Carpinus.* *Tourn. Inst.* 582. *Boerh. Ind.* A. 2. 176. *Betulus sive Carpinus.* *Ger.* 1296. *Emac.* 1479. **THE HORNBEAN.**

It grows every-where in Woods and Hedges in *England*, *France*, and *Germany*. The Wood is white, hard, and firm: Whence it is much used by Wheelwrights. Being wounded in the Spring, it discharges a Tear, after the Manner of the Birch; but I find no medicinal Virtues ascribed to this, or any other Part of the Plant. *Ray, Dale.*

**OSYRIS.** *Offic. Osyris frutescens baccifera.* *C. B. P.* 212. *Cassia Poetica Lobelii.* *Ger.* 1110. *Emac.* 1295. *Raii Hist.* 2. 1489. *Cassia Poetica Monspeliensis.* *Park. Theat.* 452. *Cassia lignea Monspeliensis.* *L. B.* 1. 458. *Cassia Poetica Monspeliensis, an Theophrasti?* *Tourn. Inst.* 664. *Cassia Latinorum.* *Alpin. Exot.* 41. **POETS ROSEMARY.**

The whole Shrub has something of an astringent Quality, the Root is hard and woody and covered with a redish, thick Bark, which is very astringent. It grows in *Italy*, and about *Montpelier* in *France*, where *Ray* observed it in great Plenty; and flowers in *January*, and sometimes in *April* and *May*; and the Fruit is ripe in *October*, or sooner.

The whole Plant being astringent, it is likely to be of Efficacy in Fluxes of the Belly, and other Disorders of that Kind. *Ray.* Some Shops, as *J. Bauhine* says, used it instead of the Cassia of the Ancients; but it must have contrary Effects, as appears from its astringent Taste, and be more proper for Fluxes of the Intestines. *Dale.*

**OTALGIA**, from *ὄταλγία*, from *ὄς*, an Ear, and *ἄλγος*, Pain. A Pain in the Ear.

**OTENCHYTES**, from *ὄτεγχύτης*, from *ὄς*, an Ear, and *ἐγχύω*, to pour into. A Syringe for the Ears.

**OTHANI.** Mercury of the Philosophers.

**OTHIONNA.** See **AFRICANUS FLOS**.

**OTIS.** The Bustard, a large Bird found in *England*, and other Countries. The Fat is said to be anodyne, and resolvent. The Dung is resolvent, and a good Application for the Itch.

**OTTES.** A Name for the Finger next to the little Finger, called, also, *Digitus Auricularis*.

**OVARIA.** The Ovaries. See **GENERATIO**.

**OVATUS, or OVIFORMIS HUMOR.** The Aqueous Humour of the Eye.

**OVIDUCTUS.** The **TUBE FALLOPIANÆ**.

**OVIS.** *Offic. Schrod.* 5. 303. *Schw. de Quad.* 57. *Jonst. de Quad.* 38. *Gesn. de Quad.* 770. *Aldrov. de Quad.* B. 1. 370. *Ovis domestica.* *Rui Synop.* A. 73. *Mas Aries dicitur, Fetus Agnus.* **THE SHEEP.** See **ALIMENTA**.

The Parts used in Medicine are the Brain, Gall, the Oesophagus, the raw or unwashed Wool (*Lana succida*) the Fat, Lungs, Cawl, Dung, Urine, Bladder, Head, Feet, incinerated Bone, and Rennet.

The Brain of a Ram is said to be effectual in preventing immoderate Sleep, in epidemic Diseases, and to facilitate Dentition. The Gall loosens the Belly; applied outwardly, cures a Circumosis; and is of Service in a Purgency of the Ears: The Gall of a Lamb is prescribed for the Epilepsy. The Oesophagus is emollient, resolvent, heating, anodyne, and proper in Luxations, Convulsions, and the like. The Wool of a Lamb is good to mitigate and mollify Tumors in the Neck. The raw Wool of a Sheep is heating, emollient, lenient, and has the same Virtues as the Oesophagus. The Fat, given in Red wine, stops Hemorrhages, and cures a Diarrhoea, Dysentery, and Gripes. The Lungs, applied to the Head, mitigate the Pains, and immoderate Heat thereof, and compose the disordered and tumultuous Spirits; whence it is of principal Service in Phrenitis, Want of Sleep, and the like Disorders. The Cawl, applied hot, cures the Pain of the



the Colic. The Dung is refrigerating, drying, aperitive, and diuretic: Whence it is of very great Efficacy in the Jaundice, and other Distempers; and, used externally, cures a Tumor of the Spleen, a Thymus, Corns, Warts, and other cutaneous Tumors; and is, also, very comfortable in Ambustions. The Urine, drank, expels the Water in an Anasarca. The Bladder, burnt, and exhibited, relieves those who cannot retain their Urine. The Head and Feet of a Wether, well boiled in running Water, are serviceable in Atrophie and Contractions. The Bones of a Lamb, incinerated, promote the Consolidation of Wounds, even of those which are most difficult to be consolidated. The Rennet is good against Poisons; to curdle Milk; and for venomous Bites. Dale from Schroder.

You are to chuse the Flesh, and such other Parts of a Sheep as are young, pretty fat, tender, well-fed, and bred in a pure and dry Air.

Well-fed Mutton yields good Nourishment, and is easy of Digestion.

When it is old, it is dry, hard, and not easily digested.

Mutton contains much Oil, and volatile Salt, in all the Parts of it.

Rams-flesh is seldom eat, because of its unpleasant Smell, and rank Taste, almost like that of an He-goat. The Flesh of an Ewe is a little more used; yet not much in Esteem, because it is insipid, viscous, and subject to produce gross Humours, and bad Juice.

As for what is properly called *Mutton*, which is the Flesh of a Wether, it is much esteemed, because it is tender, well-tasted, very mollifying, full of oily balsamic Parts, and volatile Salts, proper to produce the good Effects we attribute to it. Lemery on Foods.

As the Sheep lives on Vegetables and Water only, and the habitual Exercise of this Animal is very small; in consequence of these, the Juices are not much inclined to an alkaline Putrefaction, especially if it is suffered to bleed sufficiently, and not killed whilst heated by Exercise.

OVUM. See ALBUMEN.

Eggs differ very much, according to the Birds that lay them; according to their Colour, Form, Bigness, Age, and the different Way of Dressing them: Those most used in Food are Hens Eggs. You ought to chuse those that are new-laid. Some Authors, also, require, that they should be very white and long.

Eggs are nourishing and good Food; they increase the seminal Juices, qualify the sharp Humours of the Breast, are good for phthisical People, easily digest, ease the Piles, and are looked upon to be good to make the Voice loud and fine.

When Eggs are too old, they heat too much, produce bad Juice, and are more especially noxious to those who are of an hot and bilious Constitution: They contain much Oil and Salt, and agree at all times with any Age and Constitution; provided they are endued with the good Qualities before-mentioned.

#### R E M A R K S.

There is no Food more in Use than Eggs: They are good in Sickness and Health, and make a Part of the Composition of several medicinal Remedies. The various Ways of dressing them make them more or less wholesome. In general, if you would have Eggs produce good Effects, they should be moderately boiled; for, when they are done too little, they continue slimy, and, consequently, hard of Digestion; and, when they are done too much, they are hard and heavy in the Stomach; because the Heat hath dissipated their more volatile and exalted Principles, leaving none but the grosser Parts behind, which being close united together, make the Eggs compact and hard; and, therefore, Eggs ought neither to be too slimy, nor too hard, but of a soft and moist Substance.

The Egg consists of two Parts, the White and the Yolk; and these, being taken separately, have different Virtues: The White is full of oily and balsamic Principles, that make it moist, cooling, nourishing, and fit to qualify the Violence of the Juices. The Yolk abounds more in volatile and exalted Principles, by the Help of which it strengthens the solid Parts, increases the Spirits, and keeps the Humours in a just Fluidity. These two Parts of the Egg, though differing in Virtue, fail not to concur together, in producing the good Effects attributed to the Egg.

The freshest Eggs are the best, and most healthful, because they abound more in volatile and exalted Principles; besides, their oily and saline Parts being in a more perfect Union one with another, they yield a more easy Food: Old Eggs, on the contrary, have undergone a Sort of Effervescence, which not only dissipates the more volatile Parts, but, also, destroys the Union between this oily and saline Principle. Therefore such Eggs are very heating, have often an unpleasant Taste and Smell, and produce bad Juice.

*Aquapendente* relates several Ways how to know whether Eggs are new-laid, or not: He would have them held to a Candle,

and then see whether the Humours contained therein are clear, thin, and transparent; for, if they be otherwise, it is a Sign the Eggs are old; because the Effervescence has embroiled and confounded the insensible Parts of these Humours, and made them dark.

Lastly, Hold an Egg to the Fire, and if a little watry Moisture sticks to it, it is new; but if not, it is old: Because a new-laid Egg is moister than the old; and its Humours, being thinner, work easier through the Pores of the Shell.

*Galen*, in his third Book of the Nature of Food, assures us, that the best and wholesomest Eggs are those of the Hen and Pheasant; but he disallows of the Use of those of the Gobbie and Ostrich: But other Authors much extol them.

*Hippocrates*, in his third Book of Diseases, says, that the White of Eggs, well beaten in Spring-water, make a Drink that is very moistening, cooling, good for those that are sick of Fevers, and for opening the Body. Some assert, that Peacocks Eggs are good for the running Gout; and that those of the Raven are an excellent Remedy for the Bloody Flux.

*Aristotle*, in *Lib. 6. Hist. An. Cap. 2.* says, that long Eggs produce the Female, and round the Male Kind. *Scaliger*, in *Comm.* seems to be of the same Opinion. *Pliny* is of the opposite Side; for he pretends, that the long Eggs are for the Males, and the round for the Females: *Columella* and *Avicen* agree with him. But these Opinions are supported by no Foundation, as the Authors give neither good Reasons, nor Experiments, to prove their respective Assertions, and it is very likely, that both the round and the long Eggs may indifferently produce Male and Female. Lemery, on Foods.

As a Knowledge of the Nature of Aliments, as well as of Medicines, is of great Importance to Health; since the former contribute very much, not only to the Preservation and Restoration of a sound State, but, also, to the Generation of various Disorders; so we shall investigate the Nature, and muster up various Experiments, relating to the Eggs of Animals, especially those of Hens, which are justly accounted the most salutary, and best adapted for nourishing and recruiting the human Constitution.

First, It is, therefore, to be observed, that in Bulk and Weight Hens Eggs greatly differ from each other; but an Egg of an ordinary Size weighs generally about two Ounces, whilst the Shell is, for the most part, about one Dram and a few Grains; the Yolk, about half an Ounce; and the White, an Ounce and an half, that is, by one Third heavier than the Yolk.

Secondly, If a new-laid Egg, weighing two Ounces, is boiled to Hardness, in Water, its Weight is diminished one Dram and an half; an infallible Proof, that, by the Boiling, some Portion of that most subtle Principle, which is the Cause of its Fluidity, is carried off through the Pores of the Shell.

Thirdly, A new-laid Egg, when boiled, does not suddenly become hard, but a Portion of the White appears fluid, like Milk; a Proof, that an highly subtle and fluid Matter is contained in an Egg, and in Process of Time transpires; which is, also, evinced from this, that old Eggs not only become dry and collapsed, so as to leave a certain Cavity within, but, also, easily become rotten, especially in the Summer-time, when, in consequence of the great Heat, this subtle Matter is most copiously carried off by Transpiration: Hence we may lay it down as a Rule, That new-laid Eggs, especially in the Summer-time, are most commodiously kept fresh in a cold Place, or rather in cold Water, impregnated with Salt.

Fourthly, If an unboiled Egg is laid immediately upon live Coals, which are not very hot, a Liquor is observed to sweat through its Pores; for the Heat so increases the Elasticity of the Fluid in the Egg, as forcibly to open the Pores, and protrude the Liquor: Hence we learn, that the Shell of an Egg is a very perspirable Substance.

Fifthly, The White of an Egg, by a very gentle Fire or Warmth, is forthwith resolved, and melted down; but the more the Heat is increased, the more it is inspissated. For this Reason, if we examine incubated Eggs, we find the White highly attenuated and liquid, but never thick. And these different Effects are to be ascribed to the Augmentation or Diminution of the Degrees of Heat; for the White of an Egg becomes inspissated by an Heat surpassing that of a sound Person: Hence we may justly infer, that poached Eggs are very improperly exhibited in feverish Heats: Hence, also, we learn, that a moderate Heat is more efficacious in softening Tumors, than that intense Heat generally produced by the Application of Caustics, and other Topics; for intense Heat, whether external or internal, proves hurtful to the human Fluids, by disposing them to Thickness.

Sixthly, If in a Sand-heat, duly hot, we distil the White of an Egg, inspissated by Boiling, there is first yielded a large Quantity of Phlegm, which, being void of Taste and Smell, is neither acid, nor alkaline. Afterwards, upon augmenting the Fire, there is yielded a Spirit of a yellow Colour, which, by Rectification, yields a Water, a volatile Salt, and, at last, a thin, tend, and heavy Oil. In the Retort there remains a spongy and insipid Earth, deprived of all fixed and alkaline Salt, and which, in an open Fire, becomes light, spongy, and insipid. Hence we learn, what



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what various Effects the different Degrees of Fire may produce in the same Process, and how great Necessity there is for a cautious Application of these Degrees of Fire.

Seventhly, The White of an Egg, upon an Admixture of highly rectified Spirit of Wine, is strongly coagulated, which, also, happens upon an Admixture of the Oil of Vitriol, or any other Acid: Since, therefore, the nutritious Juices of Animals approach very much to the Nature of the White of an Egg, which affords the first Nourishment to the Chicken, hence it is obvious, how prejudicial Brandy must be to the habitual Drinkers of it; for nothing is more injurious, either to the Life or Health of Animals, than that which coagulates the vital Humours, and destroys their due Fluidity, since they ought continually to be carried through numberless Vessels: For, by this means, various Diseases are generated, and the Viscera disposed to Obstructions, Indurations, and a Scirrhus: Hence, also, terrible chronical Disorders, such as a Phthisis, a Dropsy, a Cachexy, polypose and calculous Concretions, not only arise, but are increased. It is, also, certain from Practice, that spirituous Substances, such as camphorated Spirit of Wine, are not always beneficial in dissolving Tumors, and removing Pains of the Joints; since it is certain from Experience, that, in arthritic Patients, staphaceous Concretions are easily formed by the frequent Application of spirituous Substances. *Hoffman, Observat. Phys. Chym. Lib. 2. Obs 20.*

OXALIS. The same as ACETOSA; which see.

OXALME. See ACETUM.

OXELÆUM, ὀξέλαιον. A Composition of Vinegar, and Oil.

OXERUM EMPLASTRUM. A Name for a Plaster, mentioned by *Aetius, Tetrabib. 2. Serm. 4. Cap. 53.*

OXINES, ὀξίνες. Wine which is sour, but not quite converted into Vinegar.

OXOS, ὀξύ. Vinegar.

OXYA. The *Fagus*. Beech-tree.

OXYACANTHA. See BERBERIS.

OXYBAPHON, ὀξύβαφον. A Measure. The same as ACETABULUM; which see.

OXYCEDRUS. A Name for the *Cedrus*; *folio Cypressi; major; fructu flavescente.*

OXYCOCCUS. Offic. *Oxycoccus Tournefortii*. Rupp. Flor. Jen. 74. *Oxycoccus sive Vaccinia palustris*. J. B. 1. 525. Raii Synop. 3. 267. Tourn. Inst. 565. *Vaccinia palustris*. Ger. 1367. Etnac. 1419. Raii Hist. 1. 685. *Vaccinium palustre*. Park. Theat. 1229. *Vitis Idæa palustris*. C. B. P. 471. MOOR-BERRIES.

The Plant grows in a marshy and putrid Soil, and flowers in June. The Fruit, which is useful in Medicine, stops a Looseness and Vomiting, quenches Thirst, strengthens the Stomach, mitigates the Heat in Fevers, and resists the Pestilence. *Dale.*

OXYCRATUM, ὀξύκρατον. Oxycrate; that is, Vinegar and Water.

OXYCROCEUM EMPLASTRUM. The Name of a Plaster, described under the Article CROCUS.

OXYDORCIA. The Name of a *Collyrium*. See DACHRYRON.

OXYGALA, ὀξύγαλα. Sour Milk.

OXYGARUM, ὀξύγαρον. A Composition of *Garum*, and Vinegar.

OXYGLYCU, ὀξύγλυκυ. This is a Species of Drink prepared of the sweetest Honey-combs, macerated and boil'd. The Combs, from which all the Honey has been express'd, are to be put into a Pot with pure Water, and boil'd, till they seem to have deposited all their contain'd Honey in the Water. This Liquor is kept, and, when diluted with cold Water, is to be drank in the Summer-time, in order to remove Thirst. *Galen, in Comment. 2. de Fracturis*, and in *Comment. 3.* informs us, that the ὀξύγλυκός is the same with the ἀπόμελι; and that it is, by some, made with Honey and Vinegar; and, by others, with Honey-combs and Vinegar. The ἀπόμελι, then, is an acid Liquor, of an inciding and refrigerating Quality.

OXYLAPATHUM. A Name for the *Lapathum*; *folio, acuto plano.*

OXYLIPES, ὀξυλίπες. An Epithet for Bread, which has a Portion of Vinegar mix'd with it.

OXYMEL, ὀξύμελι, from ὀξύς, Vinegar, and μέλι, Honey. A Composition of Vinegar, and Honey. We have already given the Methods of preparing the several Sorts of Oxymel, under the Article ACETUM; and, under the Article ALCALI, we have spe-

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cify'd the Medicinal Virtues of Oxymel. See, therefore, ACETUM, and ALCALI.

OXYMYRRHINE. A Name for the *Ruscus BRUSCUS*. See BRUSCUS.

OXYNITRUM. The Name of a Plaster, described by *Aetius, Tetrabib. 4. Serm. 3. C. 17.*

OXYPETRA. A Sort of Stone, or Earth, of a yellowish white Colour, and somewhat acid, found in the Territories of Rome. It is recommended for mitigating the excessive Heat of Fevers, and quenching Thirst. For this Purpose it is infused in Water, and the Water is drank.

OXYPHLEGMASIA. An acute Inflammation.

OXYPHOENICA. An Epithet for Tamarinds.

OXYPHYLLON. A Name for the *Cnicus*, according to *Oribasius, Medic. Collect. L. 12.* But he does not seem to mean the Plant we now call by this Name.

OXYPORON, ὀξύπορον, from ὀξύς, quick, and πέρω, to pass through. A Name for several Medicines, thus call'd, because they are extremely penetrating.

OXYREGMIA, ὀξύρεγμία, from ὀξύς, acid, and ἐρεύω, to break Wind. An acid Eructation.

OXYRRHODINON. A Composition of Vinegar, and Oil of Roses.

OXYS, ὀξύς. Acute, or acid.

OXYS.

The Characters are;

The Calyx is quinquefid, monophyllous, tubulous, and Bell-shaped; the Leaves are Heart-shaped, like those of the Trefoil, and acid. The Flower is monopetalous, pentapetaloidal, and Bell-shaped; containing five inferior, and five superior Stamina, of which the latter are almost concentered to one another, at their lower Part. The Ovary, which is seated in the Bottom of the Calyx, shoots forth five Tubes, and becomes a membranaceous, oblong, quinqucapsular Fruit, furnished with five Valves, which burst asunder from the Base upwards towards the Area, and full of Seeds, involved in an elastic Calyptra, by whose Force they are discharged with Violence.

*Boerhaave* mentions six Species of *Oxys*; which are,

1. *Oxys*; flore albo. See ACETOSELLA.
2. *Oxys*; flore purpurascens. T. 88.
3. *Oxys*; lutea. J. B. 2. 388. T. 88.
4. *Oxys*; lutea; Americana; erectior. T. 88.
5. *Oxys*; bulbosa; Æthiopica; minor; folio cordato; flore ex albido purpurascens. H. A. 1. 43.
6. *Oxys*; bulbosa; Africana; rotundifolia; caulibus & floribus purpureis, amplis. H. A. 1. 41. *Boerb. Ind. alt. Plant.*

OXYSACCHARUM. A Composition of Vinegar and Sugar.

OXYSAL DIAPHORETICUM ANGELI SALÆ. This Medicine is prepared in the following Manner.

Take of the best Salt of *Carduus Benedictus*, in Grains; put it in a Pot, and gradually pour upon it Spirit of strong Wine-vinegar, or Spirit of Sugar, prepared by a gentle Heat of a *Balneum Mariæ*, without any empyreumatic Taste or Smell, till the Salt is not only dissolved, and the Vapour, produced by their Conflict, stop, but a grateful, and somewhat acid, Taste is acquired by the Mixture; the Humidity of which is to be consumed by a gentle Evaporation. After this, when the Salt is again dissolved in Water, and left in Digestion in *Balneum Mariæ*, for eight Days, a Liquor, of a beautiful and pellucid Colour, is produced, which, when pour'd off clear, into a proper Vessel, is to be again reduced to a dry Consistence, and kept in close-stop'd Vessels, lest, by the Access of the Air, it should be colligated, which it is very subject to. *Angelus Sala.*

OXYSCHOENOS. A Name for the *Juncus*; *acutus; capitulis Sarghi.*

OXYTOCA, ὀξύτοκα, from ὀξύς, quick, and τίκω, to bring forth. Medicines which promote Delivery.

OXYTRIPHYLLUM. A Name for the *Lotus*; *polyceratus; frutescens; incana; alba; siliquis curtis; crassioribus, brevioribus erectis.*

OZÆNA, ὀζαίνα. A Disorder of the Nose. See NARES.

OZE, ὀζή. A Factor, or ill Smell, of the Mouth.

OZEMAN. The White of an Egg. *Rulandus.*

OZO. Arsenic. *Rulandus.*



## P.

**P.** FOR the Signification of this Letter in the Chymical Alphabet, see ALPHABETUM. P. in Prescription, sometimes imports a *Pugil*, and sometimes *Parts*.

**PACAL.** The Name of a Tree which grows in *Peru*, the Ashes of which the Inhabitants use, mix'd with Soap, in order to cure leprous Eruptions in any Part of the Body. *Raii Hist. Plant.*

**PACCIANUM.** The Name of a *Collyrium* mention'd by *Galen* and *Aetius*.

**PACHUNTICA.** Increassating Medicines.

**PACHYS,** *παχύς*. Thick. *Hippocrates*, in his Treatise of internal Diseases, describes a Disorder, or rather several Disorders, under the Name of *παχὺ νόσημα*. This Disease is of a very singular Nature, and there are various Species of it. The first is produced by Phlegm and Bile, which, being convey'd to the Stomach, and inflating it, are, with great Violence, discharg'd both by Vomit and Stool. The Patient is seiz'd with Shiverings, and a Fever: The Pain is removed from the Stomach to the Head, and, when it descends to the Intestines, it produces a Suffocation. Sometimes the Patient vomits a sour, and sometimes a saline Phlegm: After Vomiting, he perceives a bitter Taste in his Mouth; a Redness, accompanied with Heat, appears in his Sides; and his Back becomes, in some measure, incurvated; he cannot endure to have any Part of him touch'd; and the Pain he feels is so great, that his Flesh palpitates; his Testicles are drawn up, and the Heat and Pain at the same time affect the Anus and Bladder; his Urine is thick, like that of dropical Patients; the Hairs fall from his Head, and his Feet are always cold: At last the Pain principally affects his Sides, his Back, and the Nape of his Neck; and he imagines, that something is creeping or crawling all over his Skin. This Disorder sometimes remits, and sometimes not. The Skin of the Head becomes red and thick. This Disease lasts six, and sometimes ten Years, and towards its End the Patient is seized with a copious Discharge of fetid Sweat. During his Sleep he is frequently subject to Pollutions, and the Semen he discharges is bloody and livid.

Tho' *Hippocrates* seems here at first to describe a Cholera, or some Species of Colic, yet what he afterwards advances seems to have no Analogy to these two Diseases.

The second Species of this Disorder is produced by Bile alone conveyed to the Liver, and the Head. The Liver is inflated, and presses upon the Diaphragm. The Head, and principally the Temples are at first seized with Pains. The Patient does not hear well, and often sees but very little. Then, that is, at the Beginning of the Disorder, a Fever and Shivering come on; and the Disease has sometimes considerable, and at other times less Relaxations. The longer the Disorder lasts, the more intense the Pain becomes; the Eye-balls dilate themselves, and the Patient becomes blind, so that, if a Finger is held before his Eyes, he neither perceives it, nor winks. But, if any Degree of Sight is left, he is with his Fingers continually drawing the Knots of Wool upon the Bed-clothes, imagining them to be Filth, or Lice. But when the Liver extends itself farther to the Diaphragm, the Patient becomes delirious, and imagines that he sees before him Reptiles, wild Beasts of all Kinds, or armed Men. All these he is inclined to encounter with, and agitates himself, as if he was in a real Battle. If he is not left to do as he has a mind, he uses menacing Language; and, if he is allowed to walk, he drops down. His Feet are always cold, and, if he sleeps, 'tis with continual Startings. He is frightened by terrible Dreams, and, when he wakes, he relates every thing he has done and seen; at other times he remains in Bed the whole Day and Night without speaking one Word, with a very difficult Respiration. His Delirium is, also, remov'd at certain Intervals, he returns to himself, answers the Questions ask'd him, and hears what is said to him; but soon after relapses into his former Condition. This Disorder is principally incident to Travellers, and those who, having passed thro' uninhabited Places, have been frightened by the Sight of some Spectre.

The third Species of this Disorder is produced by Phlegm, as is obvious from the Eructations of the Patient, which smell as if he had eaten Horse-radish. That Species of the Disease, or the Pain accompanying it, begins at the Legs, whence it ascends to the Abdomen; and there communicating itself to the Entrails, produces a violent Noise and Rumbling, which is succeeded by a Vomiting of acrid and putrid Phlegm. But this Evacuation affords no Relief to the Patient; on the con-

trary, he is seized with a Delirium, and an intense Pain of the Entrails, and sometimes a Pain of the Head so acute and fix'd, that he only hears and sees very confusedly. He sweats a great deal, and the Sweat is fetid; but he is relieved by this means. He is of the same Colour with those labouring under the Jaundice. This Disorder is less frequently mortal, than the former Species.

The fourth Species of this Disorder draws its Origin from white Phlegm, and succeeds long and chronical Fevers. This Kind of it begins in the Face, which is inflated; then the Abdomen is affected and elevated. The Patient feels a Pain resembling that produced by too violent Exercise, and the Abdomen is, as it were, loaded with a great Burden; the Feet are also inflated. If Rain falls upon the Earth, the Patient cannot bear the Smell exhaled by that means; and if, by chance, he is exposed to the Rain, and perceives the Smell of the Earth, he forthwith falls down. This Disorder has its lucid Intervals, but it is longer protracted than the preceding; for it lasts five Years.

Neither the modern Practitioners, nor any who succeeded *Hippocrates*, have describ'd any particular Disease, accompanied at one and the same time with a Train of so seemingly incompatible Symptoms. Some may, therefore, infer, that these Disorders either no longer attack Persons, or that they have never had any Existence, but are describ'd at Pleasure. Neither of these Circumstances are probable; but 'tis far more reasonable to suppose, that the Book here quoted is not the Production of *Hippocrates*, but of the *Cnidian* Physicians, who are by *Hippocrates* condemn'd for the very Fault which reigns thro' this Work, which is, multiplying the Species of Diseases without any Necessity: And this unnecessary Multiplication and Distinction of Species accounts for the Perplexity and Obscurity with which this Disorder is describ'd. *Le Clerc. Hist. Med. Lib. 3. Cap. 11.*

**PACO-CAATINGA.** *Maregr.* A coniferous Species of *Brazilian* Canna.

The Stalk of this Plant, being chewed, attracts Humours from the Head: Thus used, it is heating, and breaks the Stone; and, being chewed frequently in a Day, and the Juice swallow'd, is an excellent Remedy against the Gonorrhœa, which it cures in less than three Days without the Help of any other Medicine. It is offensive to the Stomach by its Acor, and, therefore, the frequent Use of it is to be avoided.

There is a second Species of this Plant, which is distinguish'd by the Sweetness of its Leaves underneath, and its red Flowers; and a third Species, known by its ceruleous, tetrapetalous Flowers. *Raii H. P.*

**PACOEIRA.** *Pison. Maregr.* A Name for the *Musa*, or Plantain-tree.

**PACO-SEROCA,** *Brasiliensis.* *Maregr. Piso.* A Species of *Brazilian* Canna, which bears its Fruit in Clusters at the Bottom of the Stalk. The fresh Leaves, as well as the Stalk and Fruit, before it is ripe, being rubbed, give a Smell like Ginger, which is very grateful; and therefore serve instead of Spices: They are, also, used in hot Baths. *Raii H. P.*

**PACOURII.** *De Laet.* A vast Tree growing in the Island of *Maragnan*, belonging to *Brazil*; it bears Leaves like those of an Apple-tree, a white Flower, and a Fruit of the Bigness of two Fists. The Rind, or Peel, of this Fruit, which is about half an Inch thick, being boiled, or preserved with Sugar, is reckon'd a Delicacy. *Raii H. P.*

**PADRI.** *H. M.* A siliquous Tree of *Malabar*, bearing a pentapetalous Flower, and long, narrow, quadrated, inflected Pods.

The Decoction of the Leaves cures the intolerable Rigor of the Viscera; the Juice hereof, mixed with the Juice of Lemons, is a Remedy for a Mania; the Juice of the Bark, worked up with the Fruit of the *Pera*, restrains the immoderate Flux of the Menfes. The Skin, or Peel, of the Root, bruised with *Calamus aromaticus* and Ginger, and mixed with the Juice of the Leaves, is prescribed as a Remedy for the putrefying Bite of the Snake called by the *Malabarians* *Polenga*. *Raii H. P.*

**PADUS.** See *CERASUS*.

**PAEDANCHONE,** from *παῖς*, or *παῖς*, a Child; and *ἀγγεῖον*, to strangulate. A Species of dry Quinsy, familiar to Children.

**PÆDARTHROCACE,** from *παῖς*, a Boy; *ἄρθρον*, a Joint; and *κακόν*, an Evil. A Disease principally incident to Children, where the Joints swell, and most commonly the Bones are rotten; so called by *Marcus Aurelius Severinus*, in his Treatise de *recondita Abscessuum Natura*. The Joint Evil.



**PÆDOPHLEBOTOMIA.** The Phlebotomy or Bleeding of Children.

**PAENOE.** The Name of a very large Tree, which grows in *Malabar*.

The Resin discharg'd from the Root, Bark, Fruit, and other Parts of this Tree, when boiled either with a large or small Quantity of Oil, is used either for hard or liquid Pitch, and is, in the *Indian* Sacrifices, sometimes burned instead of Incense.

The Kernels of the Fruit, when bruised, and, in Conjunction with warm Water, levigated on a Marble, corroborate the Stomach, remove a Nausea and Vomiting, allay racking Pains of the Belly, and cure the Cholera. The Resin of this Tree, when melted with the *Oleum Sefami*, is an excellent vulnerary Balsam. When reduced to a Powder, and exhibited, it, also, powerfully cures Gonorrhœas, and other Venereal Symptoms. *Raii Hist. Plant.*

#### PÆONIA.

The Characters are ;

It arises from a Seed, like a monocotyledinous Plant ; the Root is tuberous and thick, and the Calyx polyphyllous. The Flower is like a Rose, very large, polypetalous, and furnished with very numerous Stamina. The Fruit consists of a Multitude of horned Pods, whose Number is uncertain, incurvated downwards, cover'd with Down, and gaping lengthwise ; the Seeds are commonly globular, and contain a small Kernel.

*Boerhaave* mentions twelve Species of *Pæonia* ; which are,

1. *Pæonia* ; mas. *Offic. Ger.* 830. *Emac.* 980. *Boerb. Ind. A.* 292. *Park. Theat.* 1381. *Parad.* 341. *Raii Hist.* 1. 693. *Pæonia mas præcocior.* J. B. 3. 492. *Pæonia folio nigricante splendido, quæ mas,* C. B. P. 323. *Tourn. Inst.* 273. **MALE PEIONY.**

This Peiony has several large branched Sections, usually five, of long round brownish-green Leaves, somewhat hairy underneath, not indented about the Edges, growing on a round Foot-stalk. The Stalk on which the Flower grows, is about two Feet high, having one or two smaller Leaves, and on the Top a large deep-red Flower, made of five or six pretty big round Leaves, set about a triangular greenish Head, encompassed with yellow Chives. When the Flowers are fallen, the Head swells into two or three Seed-vessels, which are angular, whitish, and hairy, bending downwards, and opening lengthways ; when ripe, shewing the large black oval Seed. The Root consists of a Number of Tubers, some round, and some longer, that hang by Strings to the main Head ; it is planted in Gardens, and flowers in *April* and *May*.

The Roots, Flowers, and Seeds, are cephalic, and counted good against the Epilepsy, Apoplexy, and all Kinds of Convulsions, and nervous Affections, both in Young and Old ; as, also, in hysteric Cases, the Obstructions of the Menstrues, and the Retention of the Lochia. The Root and Seed are hung about Childrens Necks, to prevent Convulsions in breeding their Teeth. *Miller's Bot. Off.*

*Peiony*, or *Glycyfide*, is by some called *Pentorobon* ; and some call the Root *Idæus Dactylus*. *Dioscorides*. It is called *Pæonia* from *Pæon*, the Physician, who with this Plant, as *Homer* says, *Odyss. l.*, cured *Pluto*, when he was wounded by *Hercules*.

I saw, says *Galen*, a Boy who was freed from the Epilepsy for eight whole Months after he had worn the Root of Peiony ; but when by chance it had fallen off from his Neck, about which it had hung, he was immediately seized with the same Disorder, which was again removed by hanging another Root about his Neck. I then resolved, he says, for the surer Trial, to take off the Root again ; which being done, and the Boy relapsing into Convulsions, we hung a large and fresh Piece of the Root about his Neck, from which time he was never troubled with any Disorder of that Kind. This Experiment of *Galen* is confirm'd by *Montanus*, *Fernelius*, and *Apollonius Menubenus*, in his Book *de Aloe*, Cap. 7.

By what Property, or Quality, inherent in Peiony, this was effected, remains a Doubt ; but, whatever it were, says *Julius Alexandrinus*, in his Notes on *Galen de S. M. F.* we are frustrated in our Hopes of the like Success at present. Either, therefore, our Peiony is not so effectual as that of some other Countries, or Diseases in the Time of *Galen* were less severe than in our Days, perhaps on account of the Change in Regimen for the worse. Some pretend that the whole Affair depends on taking up the Root under a certain Position of the Stars ; and this is an Opinion which seems to border too much on Magic, and superstitious Vanity. And *C. Hoffman* makes a Question, whether *Galen's* was of such Virtue in its own Nature, or as it was τελεσιον (telestion), conjur'd ; for the Devil in many Things helps or hinders Nature. *Sylvius* says, that he had seen nothing extraordinary effected by virtue of the Root and Seed of this Plant, tho' he had very often used them. *Raii H. P.*

2. *Pæonia* ; communis ; vel fœmina. C. B. P. 323. *Tourn. Inst.* 274. *Boerb. Ind. A.* 294. *Pæonia fœmina*. *Offic. Ger.* 830. *Emac.* 981. *Raii Hist.* 1. 694. *Pæonia fœmina vulgaris, flore simplici*. *Park. Theat.* 1380. *Parad.* 490. *Pæonia fœmina vulgarior.* J. B. 3. 492. **FEMALE PEIONY.**

This Peiony has larger, taller, and greener Leaves than the Male, and arises higher, bearing very large red Flowers, consisting of a great Number of Leaves, the outermost large and broad, but the innermost composed of various Magnitudes, some very narrow and slender, others broader, and sharp-pointed, set about a double whitish woolly Seed-vessel, in which sometimes grows round black Seed, less shining than in the Male. The Roots grow after the same Manner as the former, and, indeed, being more increasing, and easier to be had, they are generally sold for the Roots of the Male ; they are cultivated in Gardens, and flower in *April* and *May*. The Root and Flowers are used.

They are accounted useful for all Distempers for which the Male Peiony is serviceable, and indeed they generally supply its Place.

Official Preparations from the Peionies are, the *Syrupus Florum Pæoniæ*, and the *Syrupus Pæoniæ compositus*, the *Aqua Simplex*, and the *Aqua Pæoniæ composita* : Both the Seed and the Root are put into the *Pulvis ad Guttatam*. *Miller's Bot. Off.*

3. *Pæonia* ; fœmina ; altera. C. B. P. 323. *M. H.* 3. 455.  
4. *Pæonia* ; peregrina ; flore saturatè rubente. C. B. P. 324. *M. H.* 3. 455.  
5. *Pæonia* ; peregrina ; flore saturatè rubente ; maxima.  
6. *Pæonia* ; folio subtus incano ; flore albo, vel pallido. C. B. P. 323. *M. H.* 3. 454.  
7. *Pæonia* ; tenuius laciniata ; subtus pubescens ; flore purpureo. C. B. P. 323. *M. H.* 3. 455.  
8. *Pæonia* ; folio maximè laciniato ; flore kermesino simplici. *An Pæonia, aquilinae foliis.* C. B. P. 323. *M. H.* 3. 454.  
9. *Pæonia* ; fœmina ; flore pleno, rubro, majore. C. B. P. 324. *Tourn. Inst.* 274. *Boerb. Ind. A.* 295. *Pæonia*. *Offic. Pæonia fœmina multiplex.* *Ger.* 831. *Emac.* 981. *Pæonia fœmina vulgaris flore pleno, rubro.* *Park. Theat.* 1380. *Parad.* 341. *Pæonia flore pleno, rubro.* J. B. 3. 493. **COMMON PEIONY.**

It is frequent in Gardens, and flowers in *May* ; the Flowers, which are the Part used in Medicine, agree in Virtue with those of the Male Peiony.

10. *Pæonia* ; flore pleno, coloris ex rubro & roseo variegati.  
11. *Pæonia* ; flore exalbido pleno, major. C. B. P. 324. *Raii Hist.* 1. 695. *Tourn. Inst.* 274. *Boerb. Ind. A.* 295. *Pæonia flore albicante.* *Offic. Pæonia flore pleno albicante.* *Park. Parad.* 342. *Pæonia fœmina Polyanthos flore albo.* *Ger.* 831. *Emac.* 982. *Pæonia albo flore pleno, sive Polyanthos alba fœmina.* J. B. 3. 494. **WHITE-FLOWERED FEMALE PEIONY.**

The Virtues are the same with those of the Male Peiony.

12. *Pæonia* ; tenuifolia ; calia ; flore pleno, ex petalis latioribus & angustioribus. rubro, *Boerb. Ind. alt. Plant.*

The Root, Flowers, and Seeds of this Plant discover, by the Taste, an aromatic and somewhat astringent Quality, attended with a Viscidity ; whence it is effectual in all Disorders proceeding from too great Laxness of the Brain, and in nervous Affections. The Root is taken up in the Month of *March*, about the New or Full Moon, dried, and cut into Slices, and may then be preserved for a considerable time. A Dram of this Root, given every Morning to an epileptic Person, will prevent the Fit, as I have made the Experiment in Children ; but, as soon as you desist from giving it, the Fit returns ; for Peiony has not Virtue sufficient for eradicating an Epilepsy. *Dr. Greav* observed, that the inner Kernel is a strong Cathartic ; but, while it remains involved within its Cortex, has no Operation at all. The Root is hung about the Necks of Children, to prevent an Epilepsy ; and the Seeds are strung as Beads, to make a Necklace for the same Purpose. Of the Flowers are prepared a Conserve, and a distilled Water ; half an Ounce of the Syrup of the Flowers, given three or four times a Day, is an excellent Remedy for Children affected with the Epilepsy. Some prepare Emulsions of the Seeds with proper Waters. The Virtues I have mentioned, belong, in a more eminent manner, to the first Species, which cures all Sorts of Convulsions, Palfies, Tremblings, nocturnal Frights in Children, and Apoplexies. *Hist. Plant. adscript. Boerhaav.*

**PÆPALE**, πατάλη. Exquisitely fine Flour. *Gorræus.*

**PAGANINA**, An Italian Word, by which are meant the first Excrements of Infants, reduced to a very fine Powder ; which, taken for many Days together, is a most approved Remedy for the Epilepsy. *Castellus.*



# P A L

**PAGOYUM.** A *Paracelsic* Term, signifying that spiritual Being which is the Author of occult Diseases, or those which depend on Inchantment. On this imaginary Subject *Paracelsus* has written a Treatise, which he calls *Pagoyus. Castellus.*

**PAGRUS, five PHAGRUS, παγρῦς ἢ παγρῶς.** A kind of Fish living near the Shores, reckoned by *Galen, de Aliment. Fac. Lib. 3. Cap. 31.* among Fish which have an hard Flesh, are difficult of Concoction, and generate thick and salt Juices in the Body.

**PAGURUS.** A kind of Crab, good to eat, but difficult of Digestion: It contains much Oil, and volatile and fixed Salt; and is aperitive and pectoral. The Shell, Claws, and the Stone in its Head, are aperitive and alkaline, good for the Stone, to provoke Urine, for Disorders in the Throat, to stop a Looseness and Hæmorrhages: The Dose is from half a Scruple to a Dram. *Lemery des Drogues.*

**PAIANELI.** H. M. A tall filiquous, or Pod-bearing Tree of *Malabar*, of which there are two Species.

1. *Palega Paianeli*, which has an Heart-shaped Leaf, and a very large oblong flat Fruit, containing a membranous Seed. The Bark of this Tree, bruised, and applied with Wine, consolidates Fractures and Cuts; a Decoction of the Root is good for a Dropsy; and the tender Leaves, bruised, and applied, with Saffron of *Malabar*, to Ulcers, conduces to their Cure.

2. *Paianeli*, with the larger mucronated Leaf, which principally distinguishes it from the former. The Root of this Tree, bruised, and boiled in Oil, serves to anoint the Head under a Pain or Cold. The Bark of the Root, given in a Decoction, is good to resolve Tumors; and a Decoction of the Bark and Leaves, bruised together, is used to anoint the Body affected with Pustules and Ulcers. *Raii Hist. Plant.*

**PAIOMIRIOBA, Raii.** A Name for the *Senna orientalis*; *fruticosa*; *Sophora dicta.*

**PAL-PAROCA, seu Couradi.** H. M. A bacciferous Shrub of *Malabar*, with a flat, round, hairy Fruit, containing four Stones; it is an Ever-green, flowers in *July*, and the Fruit is ripe in *November*. An Apozem is prepared of the Leaves, Roots, and Fruits, boiled in Water, which is said to be of excellent Use in the Gout. *Raii Hist. Plant.*

**PALA.** A very tall filiquous Tree of *Malabar*, pentaphyllous, and lactescent, with very long and narrow Pods. The Bark, bruised, and given in Decoction, is good to mollify the Belly; and, with an Addition of a little Salt and Pepper, to corroborate the Stomach, to discuss Flatulencies, and allay the immoderate Heat of the Liver; the same bruised, and taken in warm Water, kills Worms; bruised, and applied with Water, it cleanses and heals Ulcers, and mitigates the Pain of the Gout; and, boiled in Oil with the Seed of *Cudu Pariti*, and instilled into the Ears, it cures Deafness. *Raii Hist. Plant.*

**PALÆSTE, παλαιστή.** A Greek Measure of Length, the same as *Dochme*, or *Doron*, being four Fingers-breadths, or Digits. *Arbutnot.*

**PALÆTYRUS, παλαίτυρος,** from *παλαιός*, old, and *τυρός*, Cheese, is old Cheese. *Blancard.*

**PALATINÆ Glandulæ.** Conglomerated Glands adjoining to the Tonsils. *Castellus.*

**PALATUM.** The Palate.

The Palate is that Arch and Cavity of the Mouth, surrounded anteriorly by the alveolar Edge and Teeth of the upper Jaw, and reaching from thence to the great Opening of the Pharynx. This Arch is partly solid and immoveable, and partly soft and moveable. The solid Portion is that which is bounded by the Teeth, being formed by the two Ossa Maxillaria, and two Ossa Palati. The soft Portion lies behind the other, and runs backward like a Veil fixed to the Edge of the Ossa Palati, being formed partly by the common Membrane of the whole Arch, and partly by several muscular Fasciculi, &c.

The Membrane that covers all this Cavity, is like that which lines the superior and middle Portions of the Pharynx. It is very thick-set with small Glands, the Orifices of which are not so sensible as in the Pharynx, and especially in the Rugæ of the superior Portion thereof, where *Heister* observed a considerable Orifice, and a Canal proportioned to that Orifice, which he could easily inflate with Air. This is certainly the best way of beginning these Kinds of Inquiries, especially if the Pipe be held at first only very near the Part, without endeavouring to force it in. To immerse the Parts in clear Water, is, likewise, a very good way to discover small Orifices by the Help of a Microscope. Small Ducts, of the same Kind with what I have now mentioned, may be supposed to lie along the middle Line, or Raphe, of the Arch of the Palate, and along the alveolar Edge, because of some small Tubercles, or Points, which appear there.

This Membrane, together with that of the posterior Nares, forms, by an uninterrupted Continuation, the anterior and posterior Surface of the soft Portion, or Septum Palati; so that the muscular Fasciculi of this Portion lie in the Duplication of a

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glandulous Membrane. The Muscles composed of these Fasciculi shall be presently described.

The Septum, which may likewise be called *Velum*, or *Valvula Palati*, terminates below by a loose floating Edge, representing an Arch situated transversely above the Basis or Root of the Tongue. The highest Portion, or Top, of this Arch, sustains a small, soft, and irregularly conical glandulous Body, fixed by its Basis to the Arch, and its Apex hanging down without adhering to any thing, which is called *Uvula*.

On each Side of the Uvula there are two muscular half Arches, call'd *Columnæ Septi Palati*. They are all joined to the Uvula by their upper Extremities, and disposed in such a manner, as that the lower Extremities of the two, which lie on the same Side, are at a little Distance from each other, and so as that one half Arch is anterior, the other posterior, an oblong triangular Space being left between them, the Apex of which is turned toward the Basis of the Uvula.

The two half Arches on one Side, by joining the like half Arches on the other Side, form the entire Arch of the Edge of the Septum. The posterior half Arches run by their upper Extremities, more directly toward the Uvula than the anterior. The anterior half Arches have a Continuation with the Sides of the Basis of the Tongue, and the posterior with the Sides of the Pharynx. At the lower Part of the Space left between the lateral half Arches on the same Side, two Glands are situated, termed *Amygdalæ*.

The half Arches are principally made up of several flat fleshy Portions, almost in the same manner with the Body of the Septum. The Membrane which covers them is thinner than the other Parts of it towards the Palate, Pharynx, and Tongue. Each Portion is a distinct Muscle, the greatest Part of which terminates in one Extremity in the Substance of the Septum, and of the half Arches; and by the other Extremity, in Parts different from these.

As Anatomists used formerly to ascribe all these Muscles, as far as they knew them, to the Uvula, without any regard to the Septum; they term'd them in general, either *Ptery-staphylini*, or *Peri-staphylini*. The last Part of these two compound Words expresses the Uvula; the first Part of the first Word is an Abridgment of *Pterygoides*, and expresses the Insertion of these Muscles; but the first Part of the second Word signifies no more than *round*, or *about*.

I should be very glad to make use of the Term *Peri-staphylinus*, as a general Denomination for the Muscles belonging to the Septum; and then to add the other Terms, of which these Names have been made up by modern Writers. But, lest I should be thought to affect a Language different from the common, I shall retain the ordinary Names, only desiring the Reader to take notice, that, by the Term *Staphylini*, I do not mean precisely the Uvula, but only the Parts round it. If we could be allow'd to form Names of Greek and Latin Words compounded together, we might, for Example, say, *Glossopalatinus*, instead of *Glossostaphylinus*. I shall call the Muscles that go to the Uvula, simply, *Staphylini*, or *Epistaphylini*, because that Part resembles a small Bunch of Grapes, according to the Signification of the Greek Word. From what has been said, I name these Muscles in the following Manner:

*Glossostaphylini.*

*Pharyngo-staphylini.*

*Thyro-staphylini.*

*Pterygo-staphylini.*

*Spheno-falpingo-staphylini*, commonly called *Peri-staphylini Externi*.

*Pterygo-staphylini Superiores.*

*Pterygo-staphylini Inferiores.*

*Pterygo-falpingo-staphylini*, commonly called *Ptery-staphylini Interni*.

*Staphylini five Epistaphylini.*

The Glossostaphylini are two small Muscles, fixed each in the lower and lateral Part of the Basis of the Tongue; whence they run up obliquely backward, along the anterior half Arches of the Septum Palati, and terminate insensibly on each Side near the Uvula, some of their Fibres being spread through the Septum. The Thickness of the anterior half Arches is principally produced by these two Muscles.

The Pharyngo-staphylini are likewise two small Muscles, each of them being fixed by one Extremity to the lateral Part of the Musculi Thyro-pharyngei, as if they were Portions detached from these Muscles. Thence they run up obliquely forward along the two posterior half Arches of the Septum, and terminate in the Septum above the Uvula; where they meet together, and seem to form an entire Arch by the Union of their Fibres. The Thickness of the two posterior half Arches is produced by these Muscles.



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The Thyro-staphylini are two small Muscles, which accompany the Pharyngo-staphylini very closely, through their whole Course, except that their posterior Extremities are fixed in the Thyroide Cartilages near the other Muscles. They likewise contribute to the Thickness of the posterior half Arches, and are inserted in the Septum in the same manner with the former. These two Pairs of Muscles may be made one Pair, and may be called *Thyro-pharyngo-staphylini*.

The Spheno-salpingo-staphylini are each fixed by one Extremity, partly to the Sphenoidal Side of the bony Portion of the *Eustachian* Tube, partly to the nearest soft Portion of the same Tube. Thence it runs toward the external Wing of the Apophysis Pterygoidea, into which one Portion of this Muscle is inserted. The other Portion runs to the End of the Wing, and turns round to the forked Extremity thereof, as over a Pulley; and is afterwards inserted in the Septum Palati, near the Uvula.

I look upon these two Portions as two distinct Muscles, one of which, ending in the Wing, seems only to serve for the Dilatation of the *Tuba Eustachiana*. The other Portion is a true Spheno-staphylinus, and, as it has likewise an Insertion in the Tube, it may be termed *Spheno-salpingo-staphylinus*, or *Staphylinus Externus*. This is the Muscle commonly called *Peri-staphylinus Externus*.

The Pterygo-staphylinus Superior is only the external Portion of the Muscle last described; and this Name may, also, be given it, because it has a small Insertion in the upper Part of the Apophysis pterygoidea, besides that in the sphenoidal Part of the bony Portion of the Tube. The Pterygo-staphylinus Inferior, on each Side, is a small Muscle inserted by one Extremity in the Uncus pterygoideus; and, by the other, in the Septum near the Uvula. This Observation we owe to Mr. *Heister*.

The Petro-salpingo-staphylini, or Salpingo-staphylini Interni, are those which are commonly call'd *Peri-staphylini Interni*. Each Muscle is fixed by one Extremity, partly, to the inner Side of the bony Portion of the *Eustachian* Tube, or that next the Apophysis petrosa; partly along the cartilaginous Portion of the same Tube. Thence it passes a little Way under the soft membranous Part, and toward what I called *The half Pad of the Tube*; and then, turning toward the Septum, is fixed in the Edge, and partly in the upper Side thereof.

The Staphylini, or Epistaphylini, are two small fleshy Ropes, closely united together, as if they made but one Muscle; but in some Subjects they are distinguished by a very fine white Line. They are fixed by one Extremity in the common Point of the posterior Edges of the *Offa Palati*, and from thence run downward and backward along the Middle of the Septum, and likewise along the Middle of almost the whole Uvula. These Muscles have been term'd *Azygos Morgagnii*, from the Discoverer; but he considered them as one Muscle. The Pterygo-staphylini Inferiores are of the same Kind, and might be termed *Staphylini*, or *Epistaphylini Laterales*, and these last *Medii*.

The Septum Palati serves to conduct the lachrymal Lymph, and that which is continually collected on the Arch of the Palate, into the Pharynx. It serves for a Valve to hinder what we swallow, and especially what we drink, from returning by the Nares. The Uses of the different Muscles of the Septum are not as yet sufficiently known, nor the different Motions of which it is capable, as may be observed by looking for some time into the Mouth of an healthy Person wide-open'd. *Winslow*.

## OF ULCERS OF THE PALATE.

These Ulcers are of so malignant a Nature, that sometimes they not only consume the soft Parts, but corrode the Bones, and extend themselves even to the Nose. The Voice of the Patient becomes not only alter'd and broken, but whatever he drinks is immediately discharged by the Nose with very great Uneasiness. These Ulcers proceed from a scorbutic Acrimony, or a Venereal Infection, in the Blood; and, if the Cause is not speedily removed, not only the Palate, but, likewise, the Nose, will be in a miserable manner destroy'd.

The first Intention of Cure, therefore, must be either to alleviate, or entirely remove, the Acrimony of the Blood, or the Venereal Malignity, by proper internal Medicines. If the Palate is not yet perforated, or consum'd by the Caries, let it be cleansed with frequent Gargarisms, Ointments, and Injections. For this Purpose, first, make a Decoction of Agrimony, St. John's-wort, Ladies-mantle, and the like vulnerary Herbs; then mix it with Honey of Roses, or, if more powerful Detergents are necessary, with Unguentum *Aegyptiacum*, or *Fuscum*. The Honey that swims a-top of the *Aegyptiacum*, and, also, *Fallopini's* Alum-water, are excellent Detergents, even when the Caries has affected the Bones. As often as the Ulcer is thus cleansed, it will not be improper soon after to apply to the ulcerated Part with Lint, or a Pencil, Honey of Roses, Oil of Myrrh *per Deliquium*, Elixir Proprietatis, or *Peruvian* Balsam.

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If the Caries has already seized the Bones, the morbid Part may be separated from the sound, by the Remedies already recommended, especially if the Part be carefully anointed with the Oil of Cloves, or with Honey of Roses acidulated with Spirit of Vitriol, the internal Medicines being constantly continued. But, when these do not succeed, the actual Caustery ought to be gently apply'd to the morbid Bone, after having carefully cleansed the Ulcer with dry Lint, and secured the Tongue from Injury, by covering it with wet Linen Cloths, and applying the Speculum Oris. After the Cauterization is completed, continue the Application of balsamic Remedies, till the Bone is again covered with Flesh, and the Ulcer entirely cured. But those Perforations, which penetrate through the Palate to the Nose, can never again be naturally closed.

## THE METHOD OF STOPPING PERFORATIONS THROUGH THE PALATE TO THE NOSE.

When by these Perforations the Voice is injured, and Liquids are discharged by the Nose, as Nature cannot stop them up by a new Supply of Bone and Flesh, we must have recourse to Art. A Plate, therefore, of Gold, or Silver, must be adapted to the Perforation, having a Tube or Handle with Holes (see *Tab. XXXII. Fig. 4. 5.*). A Piece of Sponge must be fix'd to the End of this Handle, which, being inserted in the Perforation, prevents the Plate from falling down from the Palate; by which means the natural Voice of the Patient will not only be restored, but likewise the Power of Deglutition, in the same manner as if the Palate was entire. However, he should be provided with two of these Instruments, that they may be changed, and the Sponge washed in Water every Day, lest the Humours attracted by it should putrefy, and grow fetid. I once saw a large Perforation of the Palate, occasioned by a leaden Bullet, in an Officer, which was remedied in this manner. *Heister. Chirurg.*

**PALE**, *πάλη*. Besides its common Meaning, which is Collocation, whence the Word *Palæstra*, a Place for gymnastic Exercises, it signifies, also, the same as *Papale*, the finest of Flour. *Hippoc. Lib. 1. & 2. in Morb. Mul.*

**PALEAR**. The same as *CALLÆON*; which see.

**PALEGA-PAIANELLI**. See *PAIANELLI*.

**PALIMBOLOS**, *παλίμβολος*, from *πάλην*, an Adverb, implying Recourse, or Repetition, and *βάλλω*, to attack or seize, in *Hippocrates*, 6 *Epid. Sect. 6. Aph. 16.* is an Epithet applied to such Diseases as are of a mutable and fluctuating Nature, or easily degenerate into others; or, as *Galen* understands the Word, which flatter the Patient with Hopes of Relief, but retain a secret Malignity. *Foessius*.

**PALIMPISSA**, *παλίμπισσα*, from *πάλην*, importing Repetition, and *πίσσα*, Pitch, is a Name, as *Dioscorides* says, *Lib. 1. Cap. 97.* given by some to dry Pitch, because it is prepared of Pitch twice boiled.

**PALINCOTOS**, *παλίγκωτος*, from *πάλην*, again, and *κώτος*, a Term importing a great Uneasiness in the Mind, excited by Anger mix'd with Indignation, is an *Ionic*, and highly poetical Epithet, frequently apply'd by *Hippocrates* to a Disease, which, contrary to Hope, returns upon the Patient with renew'd Violence and Malignity. *Foessius*.

**PALINDROMIA**, *παλινδρομία*, from *πάλην*, again, and *δρόμω*, to run, is a Term used to express the preternatural Recourse, or Regurgitation, of the peccant Humours to the inner and more noble Parts. The Verb *παλινδρομω*, from whence the Word is immediately derived, is often used by *Hippocrates* in the Sense before given. *Foessius*.

**PALINGENESIA**, *παλιγγενεσία*, (from *πάλην*, again, and *γενεσία* or *γενεσις*, Generation) Regeneration, is a Word by which the Chymists have presum'd to express the Revivescence, or returning Greenness of dry Plants, by virtue of some Mercurial Water. *Theat. Chym.*

**PALINIDRYISIS**, *παλινιδρυσις*, from *πάλην*, again, and *ιδρυμαι*, to be placed, or settled, is a Resettlement, and a Word used by *Hippocrates*, *Lib. de Humor.* to express the Subsiding again, and Resettlement, of those Humours which before were elevated; and opposed to *Meteorismis*, *μεταωρισμός*, Exaltation. *Foessius*.

**PALINOPTOS**, *παλινόπτος*, from *πάλην*, again, and *ὀπτομαι*, to see, is expounded, in *Galen's Exegesis*, aversé, or turned from the Sun.

**PALIRRHŒA**, *παλῖρρηα*, from *πάλην*, again, and *ῥέω*, to flow, in *Aretæus de Cur. Morb. Acut. Lib. 2. Cap. 4.* is the Reflux, or retrograde Course, of the Humours, as in the Cholera Morbus, under black Vomiting.

**PALIURUS**.

The Characters are;

It has long and very sharp Spines, disposed in regular Order. The Calyx is monophyllous and pentaphyllous; the Flower rosaceous,



roseaceous, pentapetalous, and furnished with five Stamina. The Ovary in the Bottom of the Calyx becomes a Fruit, resembling a Bonnet, or Target, and surrounding another almost globular and tricapular Fruit, containing in each Capsula, or Cell, one round Seed.

*Boerhaave* mentions but one Sort of *Paliurus*; which is, *Paliurus Dodonæi*. *Tourn. Inst.* 616. *Boerb. Ind. A.* 2. 236. *Paliurus*. *Offic. Ger.* 1153. *Emac.* 1336. *Raii Hist.* 2. 1708. *Paliurus* *five* *Rhamnus tertius Dioscoridis*. *Park. Parad.* 607. *Rhamnus* *five* *Paliurus folio Fugubino*. *J. B.* 31. *Rhamnus folio subrotundo fructu compresso*. *C. B. P.* 477. *Paliurus* *five* *Rhamnus tertius Dioscoridis*. *Park. Theat.* 1006. CHRIST'S THORN.

We are very much inclin'd to believe with *J. Baubine*, that this Plant is the *Paliurus* of *Theophrastus*, and the same with what *Dioscorides* in one Chapter makes a third Species of *Rhamnus*, and, in another, the *Paliurus*. It grows about *Verrona*, *Berganum*, and other Parts of *Italy*, and about *Montpelier* in *France*. It delights in open, plain, and uncultivated Places, and flowers in *May* and *June*; the Fruit is ripe in Autumn, and adheres to the Tree all the Winter. It is called *Christ's Thorn*, because, as some imagine, our Saviour's Crown of Thorns was composed of it; and, indeed, you shall hardly find any Species of *Rhamnus*, or other Shrub, arm'd with sharper or stiffer Spines, or more dangerous to the Touch: Whence quick-set Hedges were usually planted of it, as being a most commodious Fence against the Incursions of Men or Beasts.

The Leaves and Root of the *Paliurus* are astringent, stop a Looseness, and digest and cure Tubercles; and the Fruit is so powerfully inciding, as to diminish the Stone in the Bladder, and promote Excretions from the Breast and Lungs. The Seeds bruised are commended against the Cough, and the Physicians of *Montpelier* prescribe their Use in Disorders from Sand and Gravel. *Raii H. P.*

PALLAX. A Name given by some Chymists to an imaginary fictitious Stone, composed of the Heaven and Earth, of the Moon, with an equal Weight of the Sun. *Theat. Chym.*

PALLIATIO. A Palliation. Physicians call it a *Palliation*, or a *palliative Cure*, when in desperate and incurable Diseases, after predicting the fatal Event, they prescribe some Remedies for mitigating the Pain, or some other urgent Syptoms, as in ulcerated Cancers, or cancerous Fistulas, and the like. *Castellus*.

PALLIUM PURPUREUM, a purple Cloak, is a Title bestow'd by *Basil Valentine* on a certain Solar Powder, prepared of an Amalgama of Gold and Mercury put into a Retort, where the Mercury being separated, what remains is calcined with Sulphur, and turned a purple Colour. *Castellus*.

PALMA.

The Characters are;

The Fruit, under an eatable Pulp, has an hard stony Nucleus, like the Stone of a Plum.

*Boerhaave* mentions nine Species of *Palma*; which are,

1. *Palma major*, *C. B. P.* 506. *Boerb. Ind. A.* 2. 169. *Palma*. *Ger.* 1333. *Emac.* 1517. *J. B.* 1. 351. *Raii Hist.* 2. 1352. *Palma vulgaris*. *Park. Theat.* 1545. *Indis Mahaindi*. *Herm. Mus. Zeyl.* 69. THE PALM, or DATE-TREE.

The Palm-tree grows in *Barbary*, *Egypt*, and *Syria*, and other hot Countries, being a large Tree, having a rough scaly Bark. The Leaves, which all grow at the Top, are large and wrinkled, made of divers stiff, nervous, hard, single Leaves, about the Breadth of a Reed, set together like a Fan. The Flowers grow among the lower Leaves, in a long Skin, or Sheath, which, opening in the middle, shews a great Number of three-leaved white Flowers, hanging on long Foot-stalks, which are succeeded by the Fruit or Dates. The Date is a round longish fleshy Fruit, of a yellow Colour, but frequently redish on one Side, of a pleasant sweet mucilaginous Taste, inclosing in a thin white Skin an hard cylindrical Stone, having a Chink, or Furrow, running its whole Length. *Miller's Bot. Off.*

The Vagina, or Sheath, which incloses the Flowers and Rudiments of the Fruits, was called by the antient Writers *Elate* and *Spatha*; and that tender and medullary Substance, which grows on the Top of the Palm-tree, called by *Theophrastus* ἐγκεφαλον, (*Encephalus*) the Brain, and by *Dioscorides*, improperly, ἐνκαρδιον πρέμνιον, (*Encardium Premnu*) the Heart and Marrow of the Trunk, is nothing but a large Bud, producing, as *Theophrastus* himself says, both Leaves and Fruit; if the Tree be deprived of this Part, it is rendered barren, and, in a short time, perishes. It appears, in many Places of the antient Writers, that this Part is eatable; and *Xenophon*, in his second Book of the Expedition of *Cyrus*, says, that the Soldiers, in such a Place, first fed on the Brain of Palm-trees, which allwither'd after being deprived of it: *Galen* also relates, that some, rather

than starve, used to eat it; and *Diphilus Siphnius*, in *Athenæus*, says, that it causes a Plethora, affords too much Nourishment; oppresses the Stomach, is very difficult of Distribution, excites Thirst, and binds the Belly. *C. Baubine* tells us, that the *Egyptians* in *Alexandria* feed on it, and even eat it raw; and that the *Egyptian* Peasants search out barren Palm-trees, in order to cut off their Tops, and take out this Pith, or medullary Substance, and sell it.

Dates, or the Fruit of the Palm-tree, when thoroughly ripe, and not too pinguious, are grateful to the Stomach, highly nutritive, and generally render those who use them, fat; but they are of difficult Digestion, and most of the antient Physicians agree, that they excited Pains of the Head: But *Arctæus* alone asserted, that all sweet Meats were prejudicial to the Stomach, except Dates, Figs, and Grapes.

The Antients, by infusing Dates in Water, prepared a Wine, the Method of making which is delivered by *Dioscorides*; according to whom, the Date is sour and astringent, and consequently proper for stopping Fluxes, and immoderate Discharges of the Menses, if drank in austere Wine. It, also, stops Hæmorrhages, and conglutinates Wounds, if the Parts affected are anointed with it. Recent Dates are of a more astringent Quality, than such as are dry; but they produce Head-achs, and, when eaten too copiously among Aliments, intoxicate the Persons who use them. Dry Dates eaten afford Relief to those who labour under Spitings of Blood, Pains of the Stomach, and Dysenteries; when triturated with Quinces, and the Ceratum Oenanthinum, and used by way of Ointment, they are beneficial in Disorders of the Bladder. The *Palmæ Caryotæ*, if eaten, remove Asperities of the Fauces. A Decoction of *Theban* Dates, if drank, allays burning Fevers; and, if taken with old Hydromel, restores the Strength. This Species of Dates, also, produce the same Effect, when used as an Aliment. A Wine possessed of the same Virtues is, also, prepared from them. Decoctions of them, by themselves, either drank, or used by way of Gargarism, are highly astringent.

The Kernels of Dates, burn'd in a new earthen Vessel, and extinguished, and washed in Wine, supply the Place of Putty, for adorning the Eye-lids. They are of an astringent Quality; brace up the Pores of the Skin; are good against Pustules of the Eyes, Staphylomata, and shedding the Hairs of the Eyebrows. In Conjunction with Wine, they repress fungous Flesh, and bring Ulcers to a Cicatrix.

Apothecaries, in preparing their Ointments, use the Spatha of the Palm-tree. The best Species of this Spatha is fragrant, astringent, weighty, close, and internally pinguious. It is of an astringent Quality, stops spreading Ulcers, and strengthens relaxed Joints, if triturated, and mixed with Malaginas and Cataplasms: When mixed with proper Cataplasms, 'tis, also, beneficial in Disorders of the Præcordia, Weakness of the Stomach, and Diseases of the Liver.

A Decoction of it, frequently rubbed on the Hairs, renders them black; and, when drank, relieves Disorders of the Kidneys, Bladder, and other Viscera. It, also, stops Fluxes, the Menses, and Hæmorrhages of the Uterus. A Decoction of it, whilst as yet tender, with Resin and Wax, cures the Itch, if applied to the Parts affected, for twenty Days. The Fruit, also, contained within it, called *Elate* and *Borassus*, produces the same Effects, and is a proper Ingredient in Ointments.

The Virtues of the Palm-tree, and its several Parts, are described by *Pliny*, *Galen*, and others of the Antients, and *J. Baubine*, *Hist. Lib.* 3. *Cap.* 159.

Among the Moderns, *Prosper Alpinus* enumerates the Medicinal Uses of the Fruit of this Tree, in the following manner: In the Fruit, says he, there are three Things principally used in Medicine; that is, the Spatha, the Powder contained in the Spatha, and the Dates themselves: The Spatha is used both in Powder and Decoctions. The Powder, taken internally, is highly beneficial in stopping Diarrhœas, Lienteries, and Dysenteries, as, also, all other Discharges of Blood, or other Humours, especially the Hepatic Flux, the Hæmorrhoids, the Menses, and a Spitting of Blood. This Powder is, also, used by the *Egyptians* in stopping Spreading Ulcers, removing a Relaxation of the Uvula, and fixing the Teeth, when loose. They, also, use the Decoction for all the same Purposes; but often mix the Powder with it. It, also, surprisingly strengthens such Joints as are weak, and subject to Destructions. The white Powder found in its proper Covering in the Spring, when the Palm-tree begins to flourish, when mixed with Sugar, is by the *Egyptians* very frequently used against Hoarseness, Coughs, and Inflammations of the Eyes. This Powder is, also, sweet, and somewhat astringent; for which Reason 'tis frequently used by the Women, for stopping immoderate Discharges of the Menses, and procuring a Retention of the Fœtus. Unripe Dates, both used in Aliments and Decoctions, are by them, also, used



against Spittings of Blood, and for stopping all Evacuations of Blood, Lienteries, Diarrhœas, Dysenteries, Vomiting of Blood, and Hæmorrhoids, as, also, for curing simple Ulcers and Wounds. For the Cure of these Disorders, they, also, frequently use a Syrup prepared of unripe Dates. They, also, use the Dates when perfectly ripe; at which time they are highly sweet, and somewhat astringent; for which Reason they are frequently used in Hoarseness, Coughs, Dyspnœas, Pleurifies, and Peripneumonies. A Decoction of them is, also, frequently used for promoting the Eruption of the Small-pox. *Prosp. Alpin. Raii Hist. Plant.*

2. Palma major, Dactylifera, folio flabelliformi, pedunculo, ad latera durissimis, magnisque, spinis armato. *Garnaiba, 1. Pisan. 126.*

3. Palma, humilis, Dactylifera, radice repenti, fobolifera, folio flabelliformi, pedunculo spinoso. *Boerb. Ind. A. 2. 169. Chamærhibes. Offic. Palma minor. C. B. P. 506. Palma humilis Hispanica spinosa & non spinosa. J. B. 1. 370. Raii Hist. 2. 1369. Palma humilis sive Chamærhibes vel Palmites. Park. Theat. 1545. Palmites sive Chamærhibes. Ger. 1335. Emac. 1519. THE DWARF PALM.*

The Fruit of this Species is of an astringent Quality, and for that Reason exhibited against all Fluxes. *Raii Hist. Plant.*

4. Palma, humilis, Dactylifera, radice repenti, fobolifera; folio flabelliformi, pedunculo vix spinoso.

5. Palma, Chamærops; Plinii. *Lugd. 369. Palma, Chamærops, Plinii, sive Chamærophes, spinosis foliis. Park. Theat. 1546.*

6. Palma, foliis longissimis, pendulis, absque ullo pedunculo ex caudice glabro enatis. See DRACONIS SANGUIS.

7. Palma, Guineensis, vinifera. *Belgis Christiana Wiin Boom, & Krissia Boom. Bosman. An Palma vinifera Lugd. 1834. Palma, vinifera, Theveti. C. B. P. 507.*

8. Palma, Japonica, spinosis pediculis, Polypodii folio. *Boerb. Ind. A. 2. 170. Sagou. Offic. Palma Indica caudice in annulos protuberante distincto, fructu pruniformi. Raii Hist. 2. 1360. Palma referens Arbor sarinifera. C. B. P. 508. Arbor sarinifera. Park. Theat. 1646. Zagu seu Arbor sarinifera. Jons. Dendr. 144. Todda-panna, seu Monta-panna. Herm. 3. 9. Tab. XIII. &c. Commel. Flor. Mal. 264. THE SAGO-TREE, INDIAN BREAD, or LIBBY-TREE.*

The Pith of these Trees, being well beat in a Mortar with Water, forms an Emulsion, the Facula of which, dried, is Sago. It is a very kindly and nourishing Food, never fermenting in the Stomach, and very proper in Hectic Fevers. It is very much used in England. *Greffroy.*

The Inhabitants of Malabar eat the Fruit of this Tree with Sugar; otherwise it renders them costive. The Juice expressed from the recent Leaves, and exhibited, allays racking Pains of the Intestines, mitigates the preternatural Heat of the Stomach, and cures a Vomiting of bloody Matter. The Cone which bears the Fruit, when bruised, reduced to the Form of a Cataplasin, and applied to the Region of the Loins, removes nephritic Pains, and checks an involuntary Effusion of Seed in Gonorrhœas. A Decoction of its tender Fruit with Water excites a Vomiting, and excellently cleanses the Stomach. The Gum of the Tree, taken internally, resists all Poisons; and, when mixed with Hens Dung, surprisingly cures the Bites of Vipers, if applied to the Part affected. The Inhabitants of Japan, of the Trunk of this Tree, make a kind of Meal; of which they prepare a Species of Bread, by them called Sagou. *Raii Hist. Plant.*

9. Palma, Indica, coccigera, angulosa. *C. B. P. 508. Boerb. Ind. A. 2. 170. Coccus. Offic. Palma Indica nucifera Coccys dicta. Raii Hist. 2. 1356. Palma nucifera Arbor. J. B. 1. 375. Palma coccifera, seu Nux Indica, Indis Lubi. Camel. Syllab. 43. Palma sive Nux Indica, vulgaris ferens Cocos. Park. Theat. 1596. Nux Indica Arbor. Ger. 1338. Emac. 1522. Coccira Indica. Pis. 63. (Ed. 1648.) Inaja-Guacuiha, vulgò Cocos. Ejusd. 130. (1658.) Inaja-guacuiha, ejus Fructus Inaja-guaca. Marg. 138. Tenga. Hort. Mal. 1. p. 1. Tab. I. H. III. IV. Polgaba. Herm. Mus. Zeyl. 50. THE COCO, or COCKER-NUT-TREE.*

From this Tree is extracted a Liquor, by the Indians called Suri, which, when drank, intoxicates, like Wine. It is of a grateful Taste, resembling that of a Mixture of sweet, saline, and acid Substances: When 'tis newly extracted, 'tis pretty sweet, but, in Process of Time, becomes more acid, and is of a whitish, somewhat green, or pale Colour. From this Liquor is distilled a Water, or Spirit, which burns in the Fire. There is, also, a Vinegar, and a Species of Sugar, by the Inhabitants called Yagra, prepared from it. The Method of extracting this Liquor is accurately described by the Authors of the *Hortus Malabaricus*. They make an Incision in the Top of the Capsule, which bears the Flowers or Fruit, and which they call the Breast of the Tree, and hang a Vessel to it. About four Inches below the Top of the Capsule, they

make an oblique Incision in the Bark, which they raise by way of Beard, as they call it, over which the Suri may drop into the Vessel.

In the Morning and Evening, and sometimes, also, in the middle of the Day, they remove the Vessels with the Suri. That obtained in the Morning is sweet, that in the Evening somewhat acid, and that obtained next Day acescent; but that on the third Day, entirely acid, without any Sweetness at all. In order to make Vinegar of the Suri, they put the Vessels, in which it is received, among Calx, for fifteen Days, by which a violent Fermentation being excited, much Froth thrown up, and a whitish Matter subsiding to the Bottom, the Suri is changed into Vinegar.

The Species of Sugar called Yagra is prepared thus: They put into the Pots a sufficient Quantity of Calx, to tinge the Suri distilled into them of a redish Colour; then they boil this Liquor, continually stirring it with a Spoon, till it is inspissated. Then a red Sugar is produced, which they render white by reiterated Dissolutions and Boilings.

The exterior Covering of the Nut is at first said to be eatable, of a pretty sweet Taste, good for corroborating the Stomach, stopping Diarrhœas, and curing Surfeits.

The Liquor, or Wine of Suri, is said to be highly beneficial to plithical Patients, and those who labour under any Disorder of the Kidneys, or a Difficulty of discharging their Urine. From the bruised Kernels is expressed a Milk without the Assistance of the Fire, eight Ounces of which drank every Morning, with the Addition of a little Salt, are highly efficacious in killing Worms, especially in Children.

Upon Water boiled with the Shavings of these Kernels there floats a sweet liquid and transparent Oil, not unlike that of sweet Almonds. When six or eight Ounces of this Oil, with an Addition of Water, in which Tamarinds have been steeped, are drank, they gently cleanse the Stomach and Intestines, evacuating principally melancholic and pituitous Humours; whereas the Kernel itself is said to render Patients costive; but this Oil must be used when recent. It is highly beneficial in Wounds; for it not only stops the Effusion of Blood, but, also, washes away the Sanies, mitigates the Pain, and at last induces a Cicatrix. From the small Fragments of the Kernels, is extracted an Oil fit for burning in Lamps, preparing Rice, relaxing the contracted Nerves, and killing Worms.

The Liquor contained in the Kernel is proper for extinguishing Thirst and Fevers, for curing and cleansing the Eyes, and for washing the Skins of Women. It, also, purifies the Blood; cleanses the Stomach, and urinary Passages; and removes Disorders of the Breast. It is of a grateful Taste, affords much Nourishment, and is an excellent Drink in biliary Fevers. *Hernandez. Raii Hist. Plant.*

Besides the foregoing Species of Palma, Dale mentions the following Sorts.

1. Palma oleosa. *Offic. Palma foliorum pediculis, fructu pruniformi, luteo, oleoso. Cat. Jamaica. 175. Hist. 2. 113. Raii Dendr. 1. Arbor exotica fructu Dactylis simili. C. B. P. 508. Palma Guineæ. J. B. 1. 369. Nucula Indica racemosa. Germ. Emac. 1554. Park. Theat. 1596. THE PALM-OIL-TREE.*

This is a kind of Palm-tree, which grows upon the Coast of Guiney; from whose flatish Fruit, about the Size of a small Plum, covered over with a fibrous Coat, they express the Palm-oil, which, when fresh, is of an Orange-colour, as thick as Butter, of a pleasant, soft, sweet Scent, of little Taste.

The Natives use this Oil with their Food, instead of Fat, or Butter: With us it is only used outwardly, being of a strengthening Nature, good for all kinds of Pains, and Weakness of the Nerves, Cramps in the Limbs, and for Strains and Bruises. *Miller's Bot. Off.*

This Tree grows spontaneously in Guiney. The only Part of it used is its Oil, or rather a thick Ointment of an Orange-colour, and fragrant Smell, obtain'd from the Fruit in the following manner: To the Pulp taken out of the Kernels, they add a large Quantity of boiling Water. Then they for a long time agitate the Pulp in a Kettle over the Fire, till it is intimately mixed. Then taking the Kettle off the Fire, they let the Matter stand, till its more fordid Parts subside to the Bottom. Then they skim off the Oil floating on the Surface of the Water; and, when they have taken all the Portion then floating on it off, they repeat the same Operation by pouring boiling Water on it again. This Oil is best when recent, not rancid, of an Orange-colour, a fragrant Smell, and of the Consistence of Butter. Externally used, it is anodyne, strengthens the Nerves, allays arthritic Pains, removes Weariness, and relaxes contracted Parts. *Dale.*

2. Palma coccifera figura Ovali. See COCCUS DE MALDIVA.

3. Palma Haira. See EREBUS ÆTHIOPICA.

4. Palma Arcifera. See ARECA.

5. Palma



5. *Palma Sanguinem Draconis fundens altera*. See DRACONIS SANGUIS.

6. *Palma sylvestris Bdellicifera*. Kemph. Amœn. Exot. 668. THE BDELLIUM-PALM.

This is the *Palma Nucifera*, folio Flabelliformi. *Kempherus* imagined, that it was the *Bdellicifera Chamæripes* of *Serapion*. Dale.

Beside the foregoing Species of *Palma*, *Ray* takes notice of the following:

1. *Palma vinifera Theveti*. J. B. C. B. This is a tall, beautiful, ever-green Tree, bearing small austere and acid Dates, which are scarce eatable. The wild *Ethiopians* bore the Trunk two Feet from the Ground, and thence extract a Liquor of a very sweet Taste, and of *Anjouin* Wine: This they keep in earthen Vessels, and call it *Mignol*; and, the better to preserve it from Corruption, they season it with some Salt, otherwise it easily turns sour: It is of an excellent Flavour, and very proper to quench Thirst. The antient *Egyptians* sprinkled the Bodies of the Dead three or four times with this Juice, before they embalmed them, in order to preserve them the more securely from Putrefaction. This Species of Palm-tree grows plentifully at *Cape Verd*.

2. *Palma Javanensis longissimo Folio*. C. B. *Palma Indica Genus Lantor dictum*. J. B. This bears a small Fruit, of the Bigness of a Cherry, of an Orange colour, and containing a Kernel, which they call *Cucos*. Of this Fruit they make a very fine Oil, of an Orange-colour, pleasant to the Taste, and very wholesome to those who are us'd to it.

3. *Pindoba Brasiliensis*. Marggr. *Pindova*. Pison. *Inaia Brasiliensis, Palma Brasiliensis cortice glabro, Fructu Ovi gallinacei Magnitudine & Figura*. Of the Saffron-colour'd Pulp of the Fruit they make an Oil of the same Colour, which is us'd in Lamps; and from the Kernel they express a very limpid Oil, which, while fresh, is good to season Food; and, when stale, serves to burn. They are both of a cold Quality, and what is expressed from the Kernels serves instead of Oil of Roses. The Leaves serve to cover the Houses, and of the same they make Mats, Baskets, and other Things; from the Top of the Tree distils a pellucid, sweet-scented, and very beautiful Gum, which sometimes serves instead of Gum Arabic: In the same Top is contained a medullary Substance, of a whitish Colour, tasting like a recent Walnut, and affording very good Nutrient, if eaten with Bread and Salt.

4. *Palma Brasiliensis quinta seu Tucum Pisoni*. Pal. Brasil. *aculeata, Fructu Pruni Damasceni Magnitudine & Figura*. The Trunk, Branches, and Leaves, are prickly; the Wood black, and extremely hard, and us'd by the Natives to sharpen their Arrows; its Fruits are produced two or three hundred or more in a Cluster; Swine and Monkeys feed upon them, and a very limpid Oil is expressed from them, which serves to the same Uses, as that from the Nuts of the *Pindova*, and is very much esteemed. The Fruit is blackish on the Outside, and contains a Kernel which is not ill-tasted, especially when new: From the filamentary Substance the *Brasilians* spin a very fine and strong Thread, very like red Silk.

5. *Palma Brasiliensis septima seu Aque Pisoni*. *Palma Brasil. vinifera, Foliis cinereis*. It bears its Fruit in Clusters of the Size of a moderate Plum, yellow when ripe, of a very sweet Taste, and containing a white and very delicious Kernel, from which the Inhabitants prepare a Wine. The Negroes call this Tree, in their own Tongue, *Catole*.

6. *Palma Brasiliensis octava Iraiba dicta*. Pisonis. Pal. Brasil. *farinifera, an Yri Lerii; id est, Palma Americana Fructu racemoso*. C. B. In the Branches about the Top of the Tree is contained a very white medullary Substance, which, boiled with Flesh or Oil, is esteemed good Food; they yield also an harder and white Substance, which they bruise, and make up into Lumps like Dough, of which Cakes are made of no ungrateful Taste; and of the Juice they prepare a very sweet and pleasant Spoonmeat. The Fruits are sweet and savoury, and serve to satisfy the Hunger of those who travel through these Woods, and vast Deserts.

7. *Palma nobilis seu regalis Jamaicensis & Barbadosis. Palmiste Franc. & Rochefort*. THE CABBAGE-TREE, or PALMETO ROYAL. This is a vast tall stait Tree, growing sometimes to the Height of two hundred and fifty, or three hundred Feet. The Top of the Trunk contains a white, very tender and savoury medullary Substance, which, eaten raw, tastes like a Walnut; but, boiled and pickled with the Multitude of tender and white Leaves, which cover and involve it on all Sides, is reckon'd one of the finest Dishes that is prepared in the *Leeward Islands*. The *French*, and our People too, call this medullary Substance, with the Leaves which involve it, *Chou de Palmiste*, that is, the Cabbage of the Palm-tree, because they boil it in their Broth, instead of Cabbage, and other Herbs. On the very Top of the Trunk grows the Involucrum, or Sheath, of the Flower and Fruits

called *Spatha*. The Fruits are round, and about the Size of an Hen's Egg.

8. *Urucuri-iba*. Marggr. & Pison. *Palma Brasiliensis farinifera, Fructu Pruni, Capulce insidente*. Of the Fruit is prepared an Oil, which is very medicinal, and particularly against the Punctures of the Ray-fish; nor do I think there is a better Remedy against that Misfortune.

9. *Palma Brasiliensis nona Miriti dicta Pisonis*. It bears a single Fruit, which is eatable and sweet, and of the Size of an Hen's Egg.

10. *Palma Brasiliensis decima Miraiba dicta Pisoni*. Its Fruit is of the Size of a Pigeon's Egg, eatable and savoury enough.

11. *Jacara & Jucura Brasiliensis*. Marggrav. *Giovana Pisoni. Palma coccifera minor Brasiliensis*. This has nothing singular, but in its very small Fruit growing in Clusters, and of the Figure of the Coco-nut.

12. *Katou-Indel*. H. M. *Palma sylvestris Malabarica, Foliis acuto, Fructu Pruni Facie*. D. Commelin. See KATOU-INDEL.

13. *Palma Facie cucifera*. J. B. *Palma cujus Fructus Cucis*. C. B.

The *Cucisphoron*, *κυκίφωρον*, of *Theophrastus*, is different from the Palm-tree; for the Palm-tree rises up with one single and individual Trunk, but the other, after it is somewhat grown, becomes bilid, and each Member is again subdivided into other Branches: The Fruit is as big as a Man's Fist, round and oblong, of a yellowish Colour, and of a sweet and very grateful Taste, not cluster'd, like that of the Palm-tree, with other Characters, which shew that the cuciferous Tree of *Theophrastus* is not a Species of *Palma*; but, because all Botanists refer it thither, we, in Compliance with them, have reduc'd it under the Genus of Palm trees. The *Nux Indica minor* of *Cordus*, which answers to the *Cucis* of *Theophrastus* in all things but the Size and Shape, seems to me to agree with the Coco-nut. I find no Description of the *Arbor cuciphore*, among the Moderns; but the Fruit shews it to be a Species of Indian Palm-tree, and particularly of the *coccifera angulosa*. C. B.

14. *Palma Indica Folio bicomposito, Fructu racemoso, Schunda-pana*. H. M. The distinguishing Character of this Tree seems to be the Leaves growing by Pairs, and across each other.

15. *Palma vinifera Fructu ex Arboris Trunco spinoso*. C. B. The Fruit of this Tree hangs from the Trunk, after the manner of Pine-nuts and Ananas, whereas in other Palm-trees they proceed from the Head of the Trunk, and are included in a *Spatha*.

The three following Species are reduc'd by *Ray*, together with the *Caranaiba*, which may be found under its proper Article, to a subordinate Genus of *Palma*, distinguished by its pliable Fan-shaped Leaves.

16. *Palma coccifera, Folio plicatili Flabelliformi Farmina Cavimpana*. H. M. *Palmeira brava Farmina Lusitanis*. The Female cocciferous *Palma* with the pliant Fan shaped Leaf.

17. *Palma coccifer Folio Flabelliformi mas, Ampana*. H. M. *Lusitani Palmeiro bravo macho*. The Male cocciferous *Palma* with the pliant Fan-shaped Leaf.

18. *Palma montana Folio plicatili Flabelliformi maximo, semel tantum frugifera, Coddapanua, seu Palma montana Malabarica*. H. M. *Cingalensis Talapas & Talagata, & Talipot. An Palmam referens Arbor farinifera*. C. B. The Mountain Palm-tree, with the pliable Fan-shaped Leaf of the largest Size. The Leaves of this Tree are said by Captain *Knox*, who lived twenty Years a Captive in the Island of *Ceylon*, to be very tenacious, and soft like Parchment; and, tho' large enough, when extended, to cover twenty Men, yet to be pliable like a Fan, to such a Degree as to be contracted and reduced to no bigger Size than that of a Man's Arm, and besides to be extremely light, so as, when divided into Parts, to be easily carry'd in the Hand.

19. *Palma humilis spinosa, Atitara Brasiliensis dicta*. Marggrav. The prickly Dwarf Palm-tree.

20. *Palma Manicam Hippocraticam referens*. C. B. *Palma succifera*. Clus. The Dwarf Palm-tree resembling *Hippocrates's* Sleeve. These two last are in *Ray* the second and third Species of the *Palma humilis*, or Dwarf Palm-tree. The first of them you have under the Title *Palma humilis. Rati H. P.*

To make Palm-wine, take ripe common Dates, and put them into a Vessel, which has an Hole bored at the Bottom, and stopp'd with a pitch'd Reed, bound about with Linen, to cover the Hole. Then, to ten Charnices of Dates, pour three Congii of Water [See the Articles *CHOENIX* and *CONATUS*]: if you would not have your Wine very sweet, pour on five Congii of Water on your Dates, and let them alone to macerate for ten Days. On the eleventh Day, take off the Linen Cloth from the Reed; and, receiving the thick and sweet Wine in proper Vessels, set it aside for Use.

This



This Wine is pleasant, but noxious to the Head ; it is good for Defluxions because of its astringent Quality, and is for the same Reason proper in Disorders of the Stomach, the Coeliac Passion, and an Hæmoptoe. Some add the like Quantity of Water a second time, and so draw it off : They do the same the third, fourth, and fifth time, but no more ; for afterwards it grows sour. *Dioscorides, Lib. 5. Cap. 40.*

PALMA signifies, also, the Palm of the Hand.

*Palma-pinus seu conifera.* The Name of a large Tree, resembling both a Palm, and a Pine.

PALMARIS MUSCULUS. The antient Anatomists mention but one Muscle belonging to the Palm, the *Palmaris longus* ; but *Fallopian* describes the *Palmaris brevis*, communicated by *Joannes Baptista Cammanus*, an eminent Anatomist, his Cotemporary ; and was first published by *Valverde*, in his Anatomy written in *Spanish*.

The *Palmaris Longus*, otherwise called *Ulnaris Gracilis*, is a small Muscle, lying between the *Os Humeri* and the *Carpus*, on the Inside of the fore Arm, its Body being small and slender, its Tendon very long and fat.

It is fixed by its fleshy Portion in the small Crista of the inner Condyle of the *Os Humeri*, sometimes closely united to the *Ulnaris Internus*. From thence it runs down fleshy for some Space, turning a little obliquely towards the middle of the fore Arm, and ends in a long narrow thin Tendon.

This Tendon passes down the middle of the fore Arm, over all the other Muscles, to which it slightly adheres ; and, advancing over the large internal annular or transverse Ligament of the *Carpus*, is inserted in the Surface thereof, sending off some radiated Filaments to the *Aponeurosis Palmaris*.

I have found this Muscle fixed to the Condyle of the *Os Humeri*, by a Tendon about a Finger's-breadth in Length, to which the fleshy Body was joined toward the Middle of the fore Arm.

I have also seen the inferior Tendon inserted in the *Os Scaphoides* of the *Carpus*, without communicating with the large annular Ligament ; and I have seen the *Aponeurosis Palmaris* arise from this Ligament ; from all which it may be reasonably concluded, that that *Aponeurosis* has no essential Dependence on this Muscle.

Sometimes this Muscle appears to be only a Production from the *Ulnaris Internus*.

The *Palmaris brevis*, otherwise called *Palmaris cutaneus*, is a small thin Plane of fleshy Fibres, situated transversely, or more or less obliquely, under the Skin of the large Eminence of the Palm of the Hand, between the *Carpus* and the little Finger ; its Fibres adhering to the Skin, and being, in some measure, interwoven with the *Membrana adiposa*.

These Fibres are fixed along the Edge of the *Aponeurosis Palmaris* from the large Ligament of the *Carpus* toward the little Finger ; and they run in for some Space on the Plane of the *Aponeurosis* ; but without any Connection with the Bones of the Metacarpus. Near the *Aponeurosis* these Fibres are more or less tendinous, and some of them often cross each other. They are sometimes so thin and pale, as hardly to be sensible ; and, in some Subjects, this Muscle seems to be divided into several Parts.

The *Ulnaris Gracilis* seems to be an Assistant to the *Ulnaris* and *Radialis Interni*, in bending the Wrist ; and it seems, also, particularly to assist the *Radialis Internus* in the Motion of Pronation. *Winslow*.

PALMAT'A. A Name for several Species of ORCHIS.

PALMOS, *ταλμός*. A Palpitation. See PALPITATIO.

PALMULA. A Date. *Palmula* is, also, a Name for the broad and flat End of a Rib. *Blancard*.

PALPEBRÆ. The Eye-lids.

PALPITATIO, Palpitation, is a Disease affecting the Heart, in which it labours under a sort of Concussion, and trembles and palpitates. The *Greeks* call this Disorder *ταλμός τοῦ καρδίας*, “ a Vibration or Trembling, of the Heart ; ” and we (the *Latin*) *Palpitatio*, a Palpitation : The Arteries throughout the Body are affected with a vehement Pulsation, and sometimes are, also, dilated ; especially those above the Clavicles. The Disease frequently intermits, especially whilst the Body enjoys Rest ; but after immoderate Exercise, drinking strong Wines, Indulgence in Venery, hot Bathing, or a Fit of Anger, returns upon the Patient. If a Palpitation of the Heart continues long, it threatens sudden Death ; it is as much to be dreaded, if it often seizes the Patient, and that after the Solution, or going off, of other Distempers ; and comes attended with a great Nausea and Vomiting, and is not at all alleviated thereby. Those on whom this Disease recurs after some Months, or even after a Year, never arrive at old Age, all dying either of acute Fevers, or suddenly of a Syncope. It is most incident to Persons who are between forty and fifty Years of Age, and to such as are molested with melancholy Flatulencies, or a Tumor of the Spleen from

black Bile. A Palpitation of the Heart precedes a Syncope, and often degenerates into it. *Lommii Med. Obs.*

Some spasmodic and convulsive Disorders affect the whole nervous System, and destroy almost all the Functions of the Body, whilst others are confin'd to particular Parts, which they frequently exagitate with terrible Violence. Of this latter kind is the Palpitation of the Heart ; which may be defin'd, A violent Twitching, or Convulsion, of the Heart, which is a muscular Substance ; or a Removal of it from its natural Place ; arising from an impetuous Influx of the fine nervous Fluid into the cardiac Nerves, and a too copious Impulse of the Blood into the Right Ventricle of the Heart ; or from an Acrimony of the Humours ; or from some other Cause.

That this Definition is just, will appear from what is afterwards to be said ; but it is to be observ'd, that it is only applicable to a morbid and uneasy Palpitation of the Heart, which is frequently chronical, and which differs from a Tremor, or slight Palpitation, of the Heart, which happens in sound Persons, and is soon remov'd ; for a Tremor of the Heart arises from a quick Influx of the nervous Fluid into those nervous Fibres, which, in the same Direction with the Vessels, especially the Coronary Arteries, surround the external Surface of the Heart, or from a too slow Influx of that Fluid into some Ramifications : Hence *Lower*, in his *Treatise de Corde*, *Cap. 2.* observ'd that the Heart of a Dog, upon tying the Eighth Pair, was immediately seiz'd with a Tremor. Hence, also, the Reason is obvious, why this Tremor is observ'd to happen partly after violent Commotions of Mind, and an excessive Use of Venery ; and partly why it succeeds a Loss of Strength, and sometimes prognosticates Deliquiums, sometimes accompanies malignant Fevers, sometimes succeeds large Hæmorrhages, and sometimes afflicts those who are just about to die. There is, also, a more frequent Palpitation or Motion of the Heart, which happens in those who run fast, jump, play at Ball, use the hot Baths, indulge themselves in excessive Joy, or discompose and ruffle themselves by exorbitant Passions ; and this Species of Palpitation is no more than a quick and speedy Systole of the Heart and Arteries, arising from too great a Commotion, and too expeditious a Circulation, of the Humours through the Cavities of the Heart. This quick Systole of the Heart, when free from an Hardness of the Pulse, is distinguished from a febrile Pulse, which is hard and frequent. A Palpitation of the Heart ought, also, to be distinguished from that which is sometimes perceived, especially in Women, about the last Months of Gestation, in the epigastric Region of the Abdomen, and which is nothing but too great a Repletion and Pulsation of the Arteries, situated there, especially of the Coeliac Arteries, by means of too large a Quantity of Blood, which cannot quickly enough return through the splenic Veins. This Species of Palpitation is most commodiously cured by Venesection ; and an Instance of it is found in *A. N. C. Dec. 1. An. 6.* But of these we do not treat, since we only consider such as frequently, and without any evident or external Cause, seizes the Patient, and is performed with so great a Contraction and Agitation of the Heart, that it is moved out of its natural Seat, and either forced more to the Left Side, or thrust so violently against the Ribs, Sternum, and Præcordia, that the Pulsation raises the external Integuments, and may be, sometimes, perceived without the Cloaths, according to *Fernelius*, in *Obs. Lib. 17. Obs. 10.* and *Christophorus a Vega*, in *Lib. 3. de Art. Med. Cap. 8.* *Rivinus*, also, in his *Treatise de Palpitatione Cordis*, *Secl. 13.* informs us, that, in a Patient labouring under a Palpitation of the Heart, he found a red Spot in that Part of the Breast ; where, upon applying his Hand, he found the Pulsation ; and that, in another Patient, he found a Callus in the same Part.

In the historical Description of this Disorder, there are some Circumstances, which deserve a particular Consideration. Those, then, are more subject to this Disorder than others, who are of firm Habits, sanguine melancholy Temperaments, delicate Minds, such as are subject to Frights, young Persons who abound in Blood and Juices ; those whose Evacuations of Blood, whether artificial or natural, are suppressed or neglected ; and especially Women whose Menfes are not duly discharged, or who have Hæmorrhages of the Nose suppressed. Hence *Ballonius*, in *Lib. 1. Consil.* uses these Words : “ As in “ young Men entering into a State of Puberty, and accustomed to frequent Hæmorrhages, a Palpitation of the “ Heart may happen, if these Hæmorrhages are suppressed, so “ it may also happen to young Women, in whom the Menfes “ have not as yet begun to flow, because in this Case the “ Blood regurgitates to the superior Parts.” The Palpitation is sometimes more gentle, and sometimes more violent ; sometimes shorter, and sometimes longer ; sometimes it attacks the miserable Patients when asleep, so as to awake them suddenly ; sometimes it, also, seizes them by Day, and is often increased after eating ; sometimes violent Anxieties of the Præcordia precede



precede this Palpitation, and under the immediate Paroxysm the Breathing is quick and difficult: It is sometimes accompanied with a Tremor of the Heart; and what is particularly remarkable is, that tho' the Pulse is intermitting, it does not, nevertheless, correspond to the Motion of the Heart; but is languid and diminished. Besides, according to *Timaeus a Guldenkleee*, in *Epist.* 23. the Pulse is not at all to be perceived in the Wrist. Under a violent Paroxysm, a great Uneasiness is perceived in the Region of the Præcordia, on account of the Disorder produced in the Diaphragm, by the Force, and palpitating Motion, of the Phrenic Nerve, situated about the Left Side of the Heart. A considerable Languor of the Body, and a Tremor of the Joints, remain after the Palpitation is over.

As for the Causes and Seat of the Disorder, the formal Cause is always so violent a Contraction and Convulsion of the Heart, that it is moved out of its natural State; but the material and proximate Cause is a certain Stagnation of the Blood, especially in the Right Ventricle of the Heart, and a too great Congestion of it to the same Part; on account of which there happens an impetuous Influx of the nervous Kind into the Cardiac Nerves and Fibres of the Heart, and a preternatural Contraction of them. But, that these Things may be the better understood, we shall premise something concerning the Structure of the Heart.

First, then, *Johannes Maria Lancisi*, in his Treatise *de Motu Cordis & Aneurismatibus*, contrary to the Opinion of most Physicians, who think that the Nerves of the Heart are very small, and hardly considerable, has shewn, from accurate anatomical Researches, that very considerable and numerous Nerves are communicated to the Muscles of the Heart; for, in each Side, the Right as well as Left, there are five Pairs of Nerves to be found; the first of which, called the *Par Vagus*, arising in the Brain, between the Nates and Testes, is propagated among the small Ramifications of the Carotid Arteries, and, in the same Direction with the Vena Cava, is convey'd to the Pericardium; and, spreading its small Ramifications to the Auricles and Arteries, terminates in the Rete Nervosum, to be found between the Aorta and Pulmonary Artery in the posterior Basis of the Heart. The second, called the Superior intercostal Pair, arises from the same Origin with the former; and, being sent from the Head through the Perforation of the Os Petrosum, descends above the Aorta; and, dividing itself into three Ramifications, communicates one to the external Part of the Heart, and the other two to what is commonly called the Reticular Contexture. The third, called the Vertebral Pair, arising within the Brain near the tenth Pair, and running off with the Vertebral Artery, proceeds through the bony Canal; and, going out about the seventh Vertebra of the Neck, is inserted in various Parts of the Heart, and is at last distributed to the Rete Nervosum. The fourth, called the Inferior Intercostal Pair, arises from the Spinal Marrow, between the third and fourth Vertebra of the Neck; and, sending off some Ramifications to the Auricles, and both Veins, often concurs in the Formation of the Plexus Nervosus. The fifth, called the Phrenic Pair, arising from the last Vertebra of the Neck, and first of the Back, distributes Nerves to the Auricles and Ventricles, and spreads through the Plexus Nervosus, from which numberless Ramifications are distributed through the whole Substance of the Heart. Hence we learn, why the Heart is possessed of a Degree of Strength superior to that of all the other Muscles of the Body; as also, why, when one Nerve is tied, the Heart, by reason of the irregular Influx of the nervous Fluid into the other Pairs, trembles; and why its Motion is not totally interrupted. 'Tis, also, to be observed, that three Pairs of these Nerves form Ganglions, of which the other two are free. By these last, the regular and natural Motion of the Heart is performed; and, by the three former, its violent and irregular Motions succeeding the Passions of the Mind. Hence the Reason is obvious, why the Passions of the Mind are so powerful in altering the Motion of the Heart. 'Tis, also, to be observed, that the Vena Cava is furnished with more Nerves than the other Vessels; because it stands in need of a great Degree of Strength, in order to return the Blood of whole Body.

'Tis, also, to be observed, that the Heart is a Muscle, or rather a Congeries of Muscles; for, as Anatomy informs us, that it is formed of numberless Fibres, and fleshy Columns, so 'tis certain, that each of these is compounded of numberless other small Fibres, every one of which, as it is a Congeries of the smallest Fibres, deserves the Name of a Muscle, especially since each is covered with a very fine Membrane, prepared of a Contexture of the nervous Fibres and Arteries. Hence it follows, that the Heart, both internally and externally, is highly nervous, sensible, and capable of being vellicated to a Contraction by every thing lodged in it. Besides, the Heart is a disengaged Muscle, suspended by four large Vessels; for which Reason it may, by preternatural Commotions, be drawn to any Side, and removed from its natural Seat. The Use of the Heart is to promote the Circulation of the Blood through the whole Body,

concerning which we shall observe the following Circumstances, as most necessary for our Purpose. The Blood from all Parts of the Body is, by means of Veins, which are at first small, and then larger, convey'd into the Vena Cava, and enters its large Sinus, which it forms near the Right Auricle of the Heart; and, being convey'd thence, enters into the said Auricle, as being an hollow Muscle at that time dilated; the Chyle, at the same time, from the Subclavian Vein, enters the same Auricle by means of the Vena Cava Descendens. This Auricle, therefore, being full of Humours, is solicited to a Contraction; by which it forces the Blood into the Right Ventricle of the Heart, which is either totally relaxed, or, according to *Lancisi*, in the End of its Diastole, and Beginning of its Systole; but the Right Ventricle, in consequence of its nervous Structure, is, by the large Quantity of Blood contained in it, stimulated to a strong Constriction, and forces the Blood into the pulmonary Artery every-where distributed through the Lungs; the Return of the Blood into the Auricle being prevented by the Tricuspid Valves. Hence, the Passages being every-where free, it is convey'd to the pulmonary Vein, and is, in the samemanner, received by the Left Ventricle of the Heart; from which it is convey'd, through the Aorta, to all the Parts of the Body. When the Blood is expressed from the Heart, its empty Ventricles are restored to their natural State, which is the Diastole; and, as soon as they are again filled with Blood, they are again necessarily contracted. Thus the Systole and Diastole of the Heart last as long as Life, which consists in an entire and perfect Circulation of the Humours.

From what has been said, 'tis obvious, that to the natural Motion of the Heart there are requisite, first, a just Proportion between the Fluid to be moved and the solid Part, that thus only such a Quantity of the former may be convey'd, as is capable of being surmounted by the natural Force of the Heart: Secondly, a just Temperature, and natural Mixture, of the Fluids: Thirdly, a due Strength of the Heart, and consequently a sufficient Influx of the nervous Fluid, and of the arterial spirituous Liquor: Fourthly, a right Disposition of the Ducts and Vessels which convey and return the Blood to and from the Vessels of the Heart, and a Freedom of their Cavities from all preternatural Obstructions. If these are not in a natural State, they alter the Motion of the Heart in various Manners. But since we only treat of a violent Palpitation of the Heart, in order to distinguish it from other Motions of the Heart, we are to observe, that it is always requisite, first, that something offensive be lodged in the Right Ventricle of the Heart: Secondly, that, in consequence of this, there should be a greater and more impetuous Influx of the nervous Fluid into the Cardiac Nerves: And, thirdly, that, in consequence of this, there should succeed a preternaturally great and violent Subsultus, and Contraction of the Heart, which, being often and quickly continued, does not cease till the foreign Impediment is removed: Fourthly, that, by so violent an Agitation, the Heart should be moved out of its natural Seat, because it is disengaged and pendulous: Fifthly, that it should frequently be protruded principally to the Left Side, because the Impulse happens from the Right to the Left Side: And, sixthly, that the Progress of the Humours through the Arteries should be irregular, and sometimes absolutely cease for some Minutes. Hence, in the Wrist, the Pulse is generally perceived intermittent, weak, small, or absolutely none at all. Deliquiums, also, frequently accompany this Disorder.

We now come to inquire into the mediate Causes of a Palpitation of the Heart; for which Purpose we shall first inquire into the Phenomena which present themselves upon laying open the Carcasses of those who have died of this Disorder. We shall not mention the Polypuses, the Stones, and other preternatural Substances found in Hearts, and the Cavities of the Vessels, since these Facts are sufficiently attested by Authors: Nor shall we mention the preternatural Quantity of Water tinged with Blood in the Pericardium after Death, which we shall afterwards account for; but we shall only specify what kind of Constitution of the Heart has been found upon dissecting such Patients: Thus, in *A. N. C. Dec. 2. An. 9. Obs. 44.* we are told, that, upon opening such a Carcase, the Heart appeared preternaturally large; its Right Ventricle dilated, and filled with a very black Blood; the Arteries collapsed, and the Vena Cava Ascendens elevated into a very large Tumor. The same is evinced by *Willis*, in *Tr. de Medicament. Oper. Sect. 7. Cap. 3.* where, besides the Infarction of the Right Ventricle, and Auricle of the Heart, the Lungs were also infarcted with a black, stagnant, and extravasated Blood. *Joh. Cousin*, in *Nov. Aethmat. Hist. 3.* informs us, that he had found some Hearts as large as that of an Ox.

Upon investigating, therefore, the mediate Causes which contribute to produce a Palpitation of the Heart, we find that they are either lodged in and about the Heart, or in remote and distant Parts: Among the former Class, the most frequent and considerable are polypous Concretions, which are always fibrous and



and membranous, generated principally in the Ventricles and Auricles of the Heart, then reaching into the Veins, and thence, frequently, forced into the Arteries. Where these Concretions produce a Palpitation of the Heart, we generally find these Signs: The Palpitation is immediately increased after violent Exercise, going up Stairs, or the slightest Commotion of the Blood. There is a great Anxiety about the Præcordia, accompanied with a weak, unequal, and sometimes a plainly intermitting Pulse; the Patient breathes with so much Difficulty, that there is often Danger of Suffocation; the Disorder is, also, frequently accompanied with Deliquiums, continues long, and yields to no Medicines. Such a Concretion, when lodged in the Cavities of the Heart, according to its various Situation, admits sometimes more, and sometimes less, of the Blood, convey'd through the Vena Cava. Hence, according as the Quantity of Blood is greater or less, the Pulse is sometimes strong, and at other times weak and obscure. When such a Polypus remains immoveable in the Place to which it adheres, we observe no Palpitation; but if, when separated from the Part where it was first formed, it fluctuates freely in the Ventricles of the Stomach, hence it may possibly be conveyed, along with the Blood, into some wide Blood-vessel, where, being firmly impacted, it totally closes it up, and hinders the Progress of the Blood, till it is again resolved; then the Pulse is not only intermittent and silent; but, also, the Vessels being thus obstructed, and the perpetual Afflux continuing to the Right Ventricle of the Heart, the Blood stagnates there, distends it, and thus stimulates the Heart to a violent Concussion, or Palpitation, which does not cease, till a free Circulation of the Blood is again restored.

Hence, in those who die of a Palpitation of the Heart, arising from a Polypus, the Right Ventricle and Auricle of the Heart, together with the Vena Cava, are found strangely dilated by the Blood stagnating within them. See *M. N. C. Dec. 2. An. 6. Obs. 233.* and *Act. Berol. Dec. 2. Vol. 7.*

A Palpitation of the Heart, also, frequently arises from some Fault of the Fluids; especially when their Bulk is so great, as to render them superior to the Force of the Solids; for, when the Humours are redundant, not only the Vessels in which they are contained, but, also, more especially, the Ventricles of the Heart, when these Humours are thrown into violent Commotions, or, by Spasms, carried impetuously, and in too large a Quantity, to the superior Parts, must be distended, relaxed, and stimulated to a Palpitation. In such a Case, the Countenance is red and florid, the Vessels turgid with Blood, and the Pulse large. This Species of the Disorder is principally incident to young Persons of sanguineous Constitutions, who, when young, were subject to large Hæmorrhages of the Nose; upon the Cessation of which, they perceive Compressions, and Uneasiness of the Breast. The same Misfortune is, also, frequently observed to happen to those, who, at the stated Times, neglect their usual Evacuations of Blood. Hence we can account for the Instances of those, who, at stated Times of the Year, prevent a recurring Palpitation of the Heart by Venesection alone: An Example of this we have in *Lacutus Lusitanus, M. P. H. Lib. 2. Hist. 39.* The same is, also, asserted by *Stalpart Vander Wiel*, who, in *Obscr. Rarior. Cent. 1. Obs. 36.* gives us a Case, from *Galen*, of a certain young Man, who, being, for three Years successively, afflicted with a Palpitation of the Heart, always felt Relief from Venesection; but, on the fourth and subsequent Years, totally preserved himself from it by seasonable Venesection.

But it more frequently happens, that a Palpitation of the Heart is induced by too large a Congestion of Blood, and viscid Serum in it; for 'tis to be observed, that thick and viscid Humours are, in their Circulation, first of all, stopt in the Liver; then, stagnating in the Viscera of the lower Abdomen, and the nerveo-membranous Parts, they stimulate them to spasmodic Strictures. When the Abdomen is constricted, the Blood is more copiously forced to the Præcordia, and from the Vena Portæ the blackest Blood is forced thro' the Vena Cava into the Right Ventricle of the Heart, in such a Quantity, that the natural Systole is hardly sufficient for propelling it; but a Blood so thick and viscid frequently leaves in the Heart a stagnant Portion, to the Expulsion of which the Palpitation is often opposed. Hence the first Rudiments of a Polypus are almost always laid: And hence a Reason may be given, why hypochondriac, scorbutic, and cachectic Patients labour under a Palpitation of the Heart, as one of their most troublesome Symptoms; as, also, why young Girls, on account of the great Compression of their Abdomen by their Stays, are greatly subject to this Disorder. Hence 'tis, also, obvious, why Men, by a Suppression of the Hæmorrhoids, are afflicted with this terrible Symptom; and why cacochymic Girls, about the first Eruption of their Menstrues, when they are not duly evacuated, as, also, Women, whose Age renders them incapable of such an Evacuation,

are much subject to this Disorder, under which they generally labour about the more remarkable Changes of the Moon. In this Case, where the vital Juices are thick, a Palpitation of the Heart is a familiar Symptom to those who labour under a flatulent or nephritic Colic; for, whilst the Flatulencies and Spasms compress and distend the Vessels of the lower Abdomen, and, by that means, force the Blood in a greater Quantity to the Præcordia, the Reason is obvious, why a Palpitation of the Heart should thence be produced.

A Palpitation of the Heart is, also, frequently produced by a certain subtle acrid and caustic Matter, which, not only acting on the Precordial and Cardiac Nerves, renders Respiration difficult; but, also, being carried along with the Mass of Humours to the Heart, and its dilated Coronary Vessels, adhering to the nervous and fleshy Fibres, it, by vellicating them, disposes them to violent concussory Motions. Thus, there are numberless Instances of Persons who have been seized with a Palpitation of the Heart, in consequence of an Itch, or Purple Fever, either repelled, not sufficiently appearing, or receding; as, also, other exanthematous Disorders preposterously repelled, or Ulcers too soon consolidated. The same Observation holds equally true, with respect to the arthritic or gouty Matter, when forced inwards. *Simon Pauli*, in *Quadripart. Botan.* gives us a remarkable Instance of a violent Palpitation of the Heart, produced by a Suppression of a Foetor of the Feet: Of this kind are, also, the Instances of Persons who have fallen into this Disorder by fetid and poisonous Vapours. Thus *Godofredus Schultzzius*, *Tr. de Natur. Tinct. Bezoard. Cap. 5.* informs us, that this Disorder was produced by the Fumes of Antimony received into the Lungs.

This Disorder may not only be induced by these Faults of the Humours, but, also, by a Defect of Blood; as we find from many Instances. Thus 'tis certain from Experience, that not only Tremors, but, also, genuine Palpitations, of the Heart have been produced after large Discharges of Blood, whether from the Uterus in Abortions, or Child-birth, or by the Menstrues, or by a Spitting of Blood from the Lungs, or from any other Parts of the Body; for, as, in order duly to perform the Systole and Diastole, a due Influx of the nervous Fluid, and arterial Blood, into the Heart, and its Vessels, is requisite; so when, in these Cases, his Influx is lessen'd, the Strength of the Heart is weaken'd, and its Contraction rendered insufficient. Hence, by the Blood rushing in, Grumes and Coagulums are gradually left in the Cavities of the Heart; and, being accumulated, not only hinder the free Circulation of the Blood, the Cause of Deliquiums, so frequent in these Disorders, but, also, stimulate the Heart to that Commotion commonly called Palpitation. But, in this Case, the Disorder is found slight, tho' frequently recurring.

Among the Causes of this Disorder, the most considerable are immoderate Perturbations of Mind, which operate in various Manners, since some of them throw the Humours into brisk Commotions, and force them from the interior Parts to the Surface of the Body, such as Anger, and Joy; whilst others, constricting the exterior Parts, rather force the Humours inwards, such as Fear, Terror, and Grief. Thus, according to Experience, and the Observation of *Gabelcoverus*, in *Cent. 4. Curat. 84.* Anger, and profuse Joy, rarely induce a true Palpitation of the Heart, but only such a Motion as consists in a quick Systole and Diastole of the Heart and Arteries, and is widely different from a true Palpitation. Fear will frequently produce a Tremor of the Heart, and may, also, be the Cause of a Palpitation, according to *Bagliivi*, in *Prax. Med. Lib. 2.* But 'tis certain from daily Experience, that Dread, or Terror, is very powerful in exciting a Palpitation of the Heart; the Reason of which seems to be this, That, whilst the Force of Terror is such, that, constricting the external Parts, it forces the Humours to the internal Parts; these rush more copiously to the Heart, which they distend beyond its natural Degree of Dilatation and Force, to a preternatural Resistance, which produces a Palpitation. I have, also, frequently observed, that hypochondriac Men, and those of weak nervous Systems, were seized with a Palpitation of the Heart after intense Meditation, a previous Refrigeration of the Extremities, and a Vertigo. Hysterical Women are, also, afflicted with a Palpitation of the Heart, upon the Smell of Perfumes.

Among the more remote Causes of a Palpitation of the Heart, are flatulent Aliments, especially when eaten by those of a weak and languid Digestion, such as hypochondriac Patients are; for such leguminous and oleraceous Aliments leave a mucous Lensor in the Stomach and Intestines; the Vapours arising from which not only distend the Intestines, and thus hinder the free Circulation of the Blood through the Vessels of the Abdomen; but, also, by expanding the Stomach, hinder the due Descent of the Diaphragm, and the Course of the Blood through the Lungs, and retard its Motion through the Cavities of the Heart. Thus *Malpighi*, in *Epist. ad Borellium*, informs



informs us of himself, that he had been frequently afflicted with violent Palpitations of the Heart, by eating leguminous Substances. Hence, also, the Reason is obvious, why hypochondriac Patients are principally afflicted with a Palpitation of the Heart after eating, and why many of the Antients placed the Cause of this Disorder in Flatulencies: So that *Hippocrates*, in *Lib. 2. Epidem. Sect. 5.* affirmed, that all Palpitations of the Heart were accompanied with Flatulencies. Nor, among the accidental Causes of this Disorder, are we to overlook the Strictures of the lower Abdomen, Thighs, and Legs, and too tight Clothes; since these, by forcing the Humours upwards, contribute to the Production of this Disorder, in those who are previously disposed to it, as *Gabelcoverus*, in *Cent. 3. Curat. 114.* informs us; and *Forestus* gives us a memorable Instance of one, who, falling asleep about Noon, with his Garters too tight, was seized with a Palpitation of the Heart; which was forthwith removed, upon loosing his Garters. In those, who from too great a Thickness of Blood, or polypous Concretions, are subject to Palpitations of the Heart, nothing more contributes to recal the Disorder, than all Commotions of the Humours, whether produced by violent Passions of the Mind, or hot Aliments and Liquors; an Instance of which, produced by Aliments too high-season'd with Spice, is found in *M. N. C. Decad. 1. An. 3. Obs. 134.* or by violent Motion of the Body, which is always observed to be injurious to such Patients.

Before we leave the Pathological Consideration of this Disorder, we shall briefly deliver our Sentiments concerning the Water of the Pericardium. 'Tis, therefore, certain from many Observations, that, in those who have died of a Palpitation of the Heart, a large Collection of Water has been found in the Pericardium: This is evinced by various Instances, to be found in *Carolus Piso, de Morbis a serosa Colluvie*; *Olaus Borrichius, in Act. Haffn. Hollerius, in Schol. Lib. 1. Cap. 39. Tulpius, Lib. 4. Cap. 20. Fernelius, Lib. 5. Pathol. Cap. 12.* Many Physicians have, also, assigned this Water in the Pericardium, for the Cause of the Palpitation; but I am rather of Opinion, with *Lower, in Tr. de Corde, Cap. 2.* that it is the Effect of the Palpitation; for, as 'tis certain from many Observations, that the Blood, when stagnating in any Part, deposits its more serous and subtile Portion, as in the Brain, the Intestines, the Uterus, and the Bladder; so 'tis equally certain, that Blood stagnating in the Ventricles and Auricles of the Heart, and put into violent Commotions, deposits its more subtile Part, which is extravasated into the Pericardium. Hence we observe, that not only a Dropsy of the Pericardium, but, also, of the Breast, is generated, and succeeds the Palpitation of the Heart.

As for the Prognostic of this Disorder, *Galen*, in his Treatise *de Locis affectis*, informs us, That "those, who in Youth, or the Declension of Age, were seized with a violent Palpitation of the Heart, rarely live long, but die soon." And, *Avicenna, Fen. 3. Primi L. Doct. 5. Cap. 1.* has these Words: "The Person who is often afflicted with a Tremor of the Heart, ought to dread a sudden Death; because, as this Symptom affects a principal Part, it is easily changed into a Syncope, which terminates in Death." Nor is this Disorder be neglected, from whatever Cause it proceeds; for it often terminates in a mortal Suffocation or Syncope, if the Heart is so distended beyond the Sphere of its Elasticity, that it cannot again contract itself. It is, also, easily converted into a dangerous Hæmoptysis, a Phthisis, a Cachexy, a convulsive Asthma, a Dropsy of the Breast, and an Anasarca. An unlucky Termination is to be dreaded, if the Palpitation is frequent, large, and accompanied with a Difficulty of Breathing, Deliquiums, and an unequal Pulse. In general, both in making the Prognostic, and accomplishing the Cure of this Disorder, the Physician must carefully observe, whether the Palpitation is idiopathic, or has its Cause within the Heart, or, at least, the adjacent Vessels; or whether it is symptomatic, or appears as a Symptom of spasmodic, convulsive, hysteric, and hypochondriac Disorders. The former can hardly be cured, whereas the latter totally ceases when the primary Disorder is removed.

#### THE CURE.

The more inveterate a Palpitation of the Heart is, the more difficult it is to be cured; for, if the Fibres of the Heart are often preternaturally vellicated and distended, they are at last so weakened, that the Disorder becomes habitual, and is excited by the slightest Cause: So that, if the Beginnings of any Disorder are to be seasonably check'd, much more ought the Rudiments of this to be opposed; because, tho' in the Infancy of the Disorder a perfect Cure may be obtained, yet when it is inveterate, and especially when it is of the idiopathic Kind, a palliative Cure can only be hoped for. The Intentions of Cure, to be pursued, are:

First, By proper Methods to allay the preternatural Comotions of the nervous Parts and Fibres of the Heart and Vessels.

Secondly, To hinder the Stagnation of the Blood about the Heart and Lungs, by deriving its Afflux to these Parts elsewhere, and rendering the Circulation more free. And,

Thirdly, Out of the Paroxysm to remove the Causes which excite the Disorder.

As for the Paroxysms, a rational Physician is to inquire what occasional Cause has contributed to induce them: When, for Instance, he is ascertained, that it proceeds from an Ebullition of the Humours, the most valuable Medicines are such as correct this Ebullition, and, at the same time, allay the preternatural Motions of the solid Parts. This Intention is best answered by the antispasmodic Powders prepared of Crabs-eyes, diaphoretic Antimony, depurated Nitre, Cinnabar, Amber, the Tooth of the Sea-horse philosophically prepared, Hartshorn prepared without Fire, and a small Quantity of the Extract of Castor: The precipitating Powders, also, either alone, or in Conjunction with the anodyne mineral Liquor, exhibited in a Draught of cold Water, is highly beneficial in correcting the Orgasm of the Humours. When the Palpitation proceeds from Flatulencies of the Intestines, or when the Patient is costive, the Skin dry, and the Feet cold, besides the above-mentioned internal Medicines, we are, also, to use external Remedies; and especially the Flatulencies and Fæces are to be eliminated by the Anus, by means of oleous and gently carminative Clysters. The Feet must also be immersed in limpid Water, but with this Caution, that, if they are excessively cold, they are previously to be rubbed with warm Cloths. When violent Hæmorrhages have preceded a Palpitation, and the Patient is excessively weak, and subject to frequent Deliquiums, to the temperating Medicines, already mentioned, we are to add Analeptics; such as Mixtures prepared of the Waters of Lily of the Valley, and Turkish Baum, Cinnamon-water prepared without Wine, Black-cherry-water, the Pulvis Marchionis, Crabs-eyes, the anodyne mineral Liquor, and some analeptic Syrup, such as that of the four cordial Flowers. The Essence of Amber is, also, of an excellent analeptic and corroborative Virtue in this Case. Nor, in the Cure of Palpitations of the Heart, are we to neglect the Use of external Remedies; among which are discutient and balsamic Fomentations, and Bags applied to the Præcordia, and Pit of the Stomach: These may be prepared of Rosemary, Mint, Baum, the Flowers of Roman Chamomile, and other Ingredients; which are to be sprinkled with vinous Baum-water. *Forestus* highly commends green Baum with Borrage warmed, and applied with Rose-water, and a little Vinegar. This Intention is, also, answered by anointing the Præcordia with the Balsam of Life. If there is a Redundance of Blood, and Venesection has for a long time been neglected, and if the Disorder will yield to none of the above-mentioned Remedies, nothing remains but to open a Vein in the Foot; or, if other Circumstances permit, in the superior Parts of the Body; in which Case, a sufficient Quantity of Blood is to be taken away; for, by this means, the Præcordia are freed from the preternatural Load of Humours, and a due Equilibrium is restored between the solid and fluid Parts. Thus *Horstius, in Lib. 3. Obs. 16.* affirms, that Venesection proved surprisingly beneficial in the Paroxysm of a Palpitation. Some Persons, by inclining the Right Side to the Earth, can alleviate, and even totally remove, the Paroxysms of this Disorder. Instances of this I have frequently seen, and a memorable one is found in *A. N. C. Dec. 1. An. 2.* The Reason of this is sufficiently obvious; for, by this incurvated Posture of the Body, the too quick Afflux of the Blood through the Vena Cava Descendens is intercepted.

Out of the Paroxysm, the whole Intention of Cure consists in removing, or, at least, diminishing, the Causes which foment and support the Distemper. For this Purpose, the Physician is diligently to guard against an Increase of the Humours, except when the Disease derives its Origin from a Defect of Blood; for by this means we not only prevent a Redundance and Spissitude of the Humours, but, also, retard the Growth of Polypuses, if they are already formed. This End is most effectually answered by Venesection, which not only affords signal Relief in the Paroxysm, but is, also, highly beneficial in preventing fresh Returns of the Disorder. Hence *Galen, in Lib. 5. de Locis affectis, Cap. 2.* does not hesitate to affirm, that all Patients who labour under a Palpitation of the Heart, may be cured by Venesection, and the Use of attenuating Aliments and Medicines. This same Opinion is espoused by *Antonius ab Altomari, Cap. 45. Capivacius, Lib. 2. Præcl. Cap. 8. Vætor Trincavelius, in Præcl. de Compos. Medicament. Et Cap. de Palpitatione Cordis; Stalpart Vander Wiel, Obs. Varior. Cent. 1. Obs. 36. Zacutus Lusitanus, M. P. II. Lib. 2. Hist. 39. and Verzarbe, Obs. 90.* These Measures are not only the most effectual in Palpitations of the Heart arising from a Redundance, or Spissitude,



tude, of the Blood, but almost the only Means which can afford Relief to those afflicted with polypous Concretions in the Heart.

Besides, stronger Attempts are, also, to be made for the Removal of the Causes; for answering which Intention, if the Palpitation is symptomatic, we are, in the Cure, to direct our Views to the primary Disorder. If this is of the hypochondriac Kind, the same Measures are to be taken with those recommended under the Article *HYPOCHONDRIACA PASSIO*; but a particular Regard is to be had to the Thickness of the Humours, which, as it lays a Foundation for polypous Concretions, so it requires the same Method of Cure; only with this Difference, that, in a simple Spissitude of the Humours, the Disorder is to be totally removed; whereas in Polypuses it is only to be removed, in order to prevent greater Dangers. But, in both Cases, it is the principal Intention of Cure, both by Aliments and Medicines, to preserve the due Fluidity of the Humours, and a regular Evacuation of the salutary Excretions. For this Purpose we are to prescribe aperient, attenuating, and resolvent Infusions and Decoctions, and thin Broths prepared with the Roots of Succory and Grass, and the Herb Chervil. *Rhodius*, in *Lib. 2. Obs. 40.* in such a Palpitation of the Heart, which he calls melancholic, recommends Whey. But the Virtues of all other Medicines are surpassed by mineral Waters, especially the *Caroline Springs*, which excellently attenuate and resolve thick, coagulated, and viscid Humours, carry off the impure Juices by Excretion, and happily remove Inflammations of the Viscera. And I know some Patients, who, being afflicted with a Palpitation of the Heart, seemed to have polypous Concretions in it, and who, by the annual Use of Venesection, and the *Caroline Springs*, have preserved themselves alive for many Years.

When a Palpitation of the Heart derives its Origin from a Retention of the Menfes or Hæmorrhoids, it is expedient to reduce these Excretions to Order; which is done by temperating, antispasmodic, diluting, and gently laxative Medicines, by Venesection, by bathing the Feet, by Baths, hot Springs, and other Things adapted to the various Circumstances of the Patient. But if Ulcers, the Itch, an arthritic Matter, or other exanthematous Disorders, are repelled, after evacuating the Sordes lodged in the *Primæ Viæ* by gentle Laxatives, we are to sheath up the acrid subtil Matter distributed through the Mass of Blood, dispose it for an Evacuation, and then eliminate it through the cutaneous Pores: Which Intention is excellently answered by Absorbents, and fixed Diaphoretics, or acidulated Medicines, such as the *Mixtura Simplex*, with the anodyne Liquor; first alone, and then with the *Spiritus Bezoardicus Rustii*, or the fuccinated Spirit of Hartshorn. This Intention is, also, answered by warm Infusions, to be drank in the Morning, in Bed; using, at the same time, a diaphoretic and temperate Regimen; but when the Disorder consists in the Heart, and its preternatural Constitution, such as a bony Hardness, Excrescences, or Abscesses, the Art of Physic is absolutely of no Use. However, the most proper Measures to be taken, in order to satisfy the Patient, are those recommended in *Polypuses*.

The most effectual Method of preventing this Disorder consists in a careful avoiding its occasional Causes, and a right Use of the Non-naturals: For which Reason, those who seem to be afflicted with Polypuses, are to be advised to avoid all, and especially violent, Motions of the Body; lest, by this means, the Humours being thrown into a Commotion, the fibrous Concretions should perhaps be torn away, and, by fluctuating freely in the Vessels, produce a speedy and fatal Event; as *Gabel-cornus*, in *Cent. 3. Curat. 114.* observes; who, also, advises that loose Clothes should be used, especially by Women, for the Abdomen, Thighs, and Legs. *Crato*, in *Lib. 5. Consil. 12.* uses these Words: "Tight Clothes about the Abdomen are to be condemn'd; the Stomach and Breast are to be well defended from the cold Air. Nor is it safe to remain in a cold Air, for any time; the Night Air is, also, to be avoided; and, when the Palpitation begins, a Clyster is to be suddenly applied, and the Hands and Feet to be rubbed." The Aliments and Drink must also be of an attenuating Nature, and every Species of stultent Food is carefully to be avoided: But, in a particular manner, the Patient is to guard against the Passions of the Mind, especially Anger and Terror, as also, from Venereal Pleasures, and too pensive a State of Mind; since these Things are, in their own Nature, capable of producing a Palpitation. And, lastly, Care is to be taken, that the Excretions of the Body be preserved in due Order; so that the Fæces be duly eliminated, and the Perspiration kept free.

#### CAUTIONS.

In Palpitations of the Heart some Authors greatly extol Opiates; but in this Disorder we are to take care not to exhibit vaporous and strong Narcotics, such as Opiates are,

especially when not sufficiently corrected; since these, especially when exhibited to Patients exhausted by large Hæmorrhages, are so far from relieving the Patient, that they rather render the Disorder worse; but in hysteric Women, where the Paroxysms are accompanied with a Palpitation of the Heart, we, with great Advantage, apply to their Nostils vaporous fetid Substances, such as Castor, Asa-fetida, and burnt Feathers. On the contrary, in these Cases, we are to abstain from Perfumes, since these not only increase, but recal the Disorder.

As in all spasmodic Disorders, it is an infallible Rule to use Venesection in the Feet, and bathe them; so 'tis to be observed, that these are not to be used, if the Feet are cold, since by this means the Disorder is increased. This Caution is, with equal Care, to be observed in Palpitations of the Heart. The Humours are rather, by Fomentations and Frictions, to be derived to the Feet; and then Bathing and Venesection may be used.

When a Palpitation arises from a Penury of the Humours, in consequence of Hæmorrhages, Analeptics, and such Things as restore Strength, are to be used; only they ought not to be of too hot a Nature, lest they should induce Orgasms. This Intention is most commodiously answered by Essence of Amber mixed with the anodyne Liquor. The Patient is, also, to be relieved with nutritive Aliments, Preparations of Milk, and such Emulsions as quickly generate Blood. And, that the Digestion may be render'd the keener, we are to the other Medicines to add such as corroborate the Tone of the Stomach, such as the *Elixir Viscerale Balsamicum*. In a chronical Palpitation of the Heart we recommend a Change of Air and Place.

In Palpitations of the Heart we are carefully to avoid drastic Purgatives and Emetics, such Things as throw the Humours into a Commotion, as, also, too aromatic and acrid Substances; since these throw the Humours into too great Commotions, and induce Spasms of the Stomach, which are immediately succeeded by an Afflux of the Humours to the *Præcordia*. As Baths of sweet Water may possibly throw the Humours into Commotions, so they are very cautiously to be used, and can only prove beneficial when used very tepid, and when the Paroxysm is remitting. On the contrary, mild Diaphoretics are principally to be used when exanthematous Disorders are repelled; since these, by provoking a gentle Diaphoresis, expel the peccant Matter, and recal the Efflorescence to the Surface of the Body.

When a Palpitation of the Heart arises from a considerable Plethora, and the Face appears pretty turgid with Blood, it is sometimes expedient to take a sufficient Quantity of Blood from the Jugular Vein; but, lest there should be too great an Afflux of Humours to the superior Parts, 'tis expedient, both before, and in the very Time of the Operation, to use pretty warm Foot-baths. Sometimes 'tis, also, necessary, previously to open a Vein in the Foot, and then to open the Jugular Vein. *Hoffman*.

*Aetnarius* tells us, that a Palpitation of the Heart may be caused by too great an Heat or Plenitude of the Blood; or by Vapours. If it proceeds from the first, the Pulse will be unequal; but there is no Necessity, that it should be so in the latter Case: What he says of the Inequality of the Pulse, we find often, by Experience, to be true. And it is not only a Forerunner of a Palpitation, but often of a Syncope, and sudden Death; and indicates some Obstruction about the Heart; as *Galen* prognosticated in the Case of *Antipater* the Physician, who died soon after in this manner. The Pulse is not only unequal, as to Time and Strength, but, frequently, intermitting. In a Fit of very strong Palpitation, the Distance between the Pulsations is greater; and the longer the Interval, the more violent they are. This is the Case in great Fulness of Blood: Hence *Galen* observes, that, upon this Account, those are most subject to Palpitations, in whom the Hæmorrhoids, or Menfes, are suppressed. A Palpitation may, also, be owing, either to an excessive Rarefaction, or too great Cohesion, of the Particles of the Blood, or to any large Quantities of Wind, which oppresses and distend the Chest, or the lower Belly. A Palpitation is a familiar Symptom in hypochondriac and hysteric People: And *Hollerius* describes a Case relating to this Disease, where the Pericardium was swelled with Wind alone, to a vast Dimension. For the Cure, *Aetnarius* lays the greatest Stress upon Bleeding and Purging; which last is first mentioned by *Aetnarius*. Alteratives must, also, be adapted to the Cause of the Complaint and Constitution of the Patient. *Piso* recommends both this, and Bleeding. *Salus* seems to be in the right, when he advises Bleeding, whether there is a Plenitude or not.

In symptomatical Palpitations, which arise from the Menfes, or Hæmorrhoids suppressed, as soon as ever Nature recovers her usual Course, this Disorder of the Heart goes off. Even the sudden Eruption of the latter, where it has not been habitual, seldom fails of removing this



this Complaint. When an Excess of Water in the Pericardium causes a Palpitation, Bleeding and Purging are ineffectual; but how an hot Loaf, a warm Eleſtuary, or an aromatic Bag, ſhould diſcuſs or waſte this Water, is not conceivable. This *Sennertus* propoſes; nor is it comprehenſible, how bliſtering upon the Sternum, which ſome adviſe, ſhould draw off this Water.

The Cure of an original Palpitation has been omitted by moſt of our Writers in Phyſic, who have generally directed all their Rules of Practice to thoſe of the ſympathetic Kind only.

*Galen* adviſed Bleeding, univerſally, in Palpitations; and it is a remarkable Caſe he gives of one, who, every Spring, was ſeized with a violent Palpitation: Bleeding every Spring three Years ſucceſſively in the Fit, took it off, which the Patient obſerving the fourth Year, he prevented the Fit by Bleeding earlier, and had the like Succeſs for ſeveral Years after. *Freind's Hiſt. Phyſ.*

In a Palpitation of the Heart ariſing from a Perturbation of the Spirits, *Boerhaave* commends the Water of Baum, made by repeated Cohobations.

#### Of PALPITATIONS, and what they portend in Diſeaſes.

By *Palpitation*, properly ſo called, *Galen*, and other Greek Phyſicians, as we are inform'd by *Galen* himſelf, *de Symptom. Cauſ. Lib. 2. Cap. 2.* underſtand a depraved kind of Motion, and not the Pulſation of the Arteries, which, however, was the Senſe that ſome Antients affix'd to the Word, as the ſame Author aſſures us, in 3 *Prorrhēt. T. 52.* where he, alſo, defines *Palpitation* to be a *preternatural Dilatation and Diſtention of ſome Part.* And, *Lib. de Trem. Convulſ. & Palpit. Cap. 5.* he tells us, that Palpitation is a kind of Diſtention, and Subſiſtence, which either affects the whole Body, as was obſerved by *Hippocrates*, 3 *Epid. ſEgr. 4.* in the phrenetic Patient, or only one Part, or many Parts together. Palpitations, for Inſtance, are generated, or excited, as *Galen*, in the above-cited Book, obſerves, in ſome Part of the Belly, Hypochondrium, Heart, or other Regions of the Body; and, indeed, in every Part thereof, which will admit of Dilatation; but eſpecially in the Skin, or Place between the Skin and Fleſh. And this Kind of Affection is more incident to the Muſcles, from the Wideness of their Paſſages, which diſpoſes them for the Reception of groſs Flatulencies, which are the Cauſe of Palpitations. That Palpitations are excited by a groſs Vapour, obſtructed in its Paſſage, we are taught by *Galen*, in the Place juſt cited, where he ſays, “The Cauſe of Palpitations I take to be a groſs “and vaporouſ Spirit, obſtructed in its Paſſage; and this Spirit, “I ſay, muſt be collected into no very ſmall Cavity, that the “Part may have a ſenſible Diſtention.” And, to the ſame Purpose, in 1 *Prorrhēt. T. 29.* he ſays, that Palpitation proceeds from a flatulent Spirit; and that Flatulencies are generated by groſs and crude Humours; and that thoſe Flatulencies and Humours are collected on account of the Coldneſs of the Parts. That the Heart and Stomach are frequently affected with Palpitations from the Stimulations of bilious and highly putrid Humours, and, alſo, from poiſonous Vapours infeſting the Mouth of the Stomach, and eſpecially the Heart, appears from the ſame Author, *Lib. de Trem. Convulſ. & Palpit.* above-cited. Some make this Affection to be the ſame with *Cardialgia*, and *Cardiaca Paſſio*; but Palpitation is a different Diſorder.

Theſe things being premiſed, let us come to the Prognosſtics: And here, firſt of all, it ſeems Matter of Inquiry, whether in acute Diſeaſes there can be obſerved any Palpitation at all, from which we may predict a Recovery. It is really a very doubtful Caſe, ſince the ſlight Palpitations of ſome Parts portend nothing certain of themſelves, tho' they are ſometimes critically excited after the ſame Manner as a Vertigo, Pains, Anxieties, and the like critical Symptoms, are excited before the general and critical Perturbation. Palpitations, then, ſometimes appear as critical, and are eaſily diſtinguiſhed as ſuch, by the Signs of a future Criſis. Of theſe we read, 1 *Prorrhēt. 36.* where it is ſaid, that “Palpitating or throbbing Pains about the Navel have “ſomething in them predictive of a Delirium; but a vehement and plentiful Spirit, with a Diſtention of the Parts, is “obſerved near a Criſis.” And, in the ſame Treatiſe, *T. 144.* “Palpitations about the Belly, with an oblong ſwelling Tension of the Hypochondrium, foreſhew an Hæmorrhage with “a Shivering.” Hence it appears, that there are ſome ſalutary critical Palpitations. Theſe excepted, all Palpitations in Diſeaſes are bad, and not only in acute Diſorders, but are even

to be dreaded when attended with no other Indispoſition, eſpecially ſuch as affect the Heart and Stomach; but moſt of all in the *Cardiaca Paſſio*, which proceeds from poiſonous Humours and Vapours, and ends in a Syncope. To this laſt Kind of Palpitations, perhaps, *Hippocrates* had a reſpect, 2 *ſph. 41.* where we read, that “They who are frequently and ſtrongly, “without manifeſt Cauſe, ſeized with fainting Fits, die ſuddenly;” as he, for Inſtance, who, as *Galen* ſays, while he was in his fainting Fit, was affected with a violent Palpitation of the Heart. In ſhort, all ſtrong Palpitations, which frequently affect the Heart, and are attended with Fainting from no manifeſt Cauſe, prove mortal in a ſhort time, according to *Galen, de Loc. affect. Lib. 5. Cap. 2.* nor can thoſe who are affected with this Symptom live many Years.

We ſhall proceed to obſerve, that, in acute Diſeaſes, all Palpitations, critical ones excepted, are bad, and, moſt of all, thoſe which are perpetual, and infeſt the whole Body, or any one of the principal Viſcera, or ſeveral of them together; and for this Reaſon, becauſe they indicate a Refrigeration of the natural Heat, as being occaſioned by a Refrigeration, according to *Galen*, in 1 *Prorrhēt.* Now all Refrigerations in hot and dry Diſeaſes are very much to be dreaded; whence a Coma, or Lethargy, ſucceeding a Phrenſy, prove mortal. Of this Nature were the Palpitations which *Hippocrates* obſerv'd in many of his dying Patients, as we read in the *Epidemics*, particularly, *Lib. 1. ſEgr. 2.* in *Silenus*, of whom we read, that, “From “the Beginning to the End, he had a great and rare Reſpiration, with a perpetual Palpitation of the Hypochondrium.”

Palpitations in all Parts of the Body are very bad, as indicating a very great Diminution of the natural Heat. Under theſe univerſal Palpitations, the Patient is in Danger of dying ſpeechleſs, as we find it hinted by way of Query, 1 *Prorrhēt. 30.* on which Place *Galen* commenting, ſays, “If Palpitation affect the whole Body, it is very poſſible, that the Patient may loſe his Voice, before he expires, on account of “Refrigeration, the Muſcles of the Larynx being deprived of “Motion, or the Nerves which ſerve them being no longer “able to perform their Function.” Of theſe Kinds of Palpitations it is, perhaps, that *Hippocrates* ſpeaks, 1 *Epid. ſEgr. 4.* as affecting the Wife of *Philinus*, when he ſays, “About the “fourteenth Day ſhe was affected with Palpitations, and her “whole Body was pain'd [as if he had ſaid, ſhe had palpitating Pains over all her Body]; ſhe talked much \*; and, “for ſome little time, ſhe had the Uſe of her Reaſon, but was “ſoon delirious again; about the ſeventeenth Day ſhe loſt her “Voice, and died on the twentieth.” And, more clearly to the Purpose, he ſays of the phrenetic Patient, 3 *Epid. ſEgr. 4.* “The Day after he was taken, in the Morning, he loſt “his Voice, had an high Fever, ſweated, had no Intermiſſion, “was affected with Palpitations all over his Body, and at “Night with Convulſions; on the third Day, all the Symptoms were exaſperated; and, on the fourth Day, he died.”

From the Premiſes it appears, that, in acute Diſeaſes, all Palpitations, which for a conſiderable Time, end in an high Degree, affect the whole Body, are very bad and mortal; and that of Palpitations, which affect only ſome Parts, thoſe which are obſerv'd in the Region of the Heart, are, in ſuch a Caſe, no leſs fatal; ſince, under a Diſorder of ſo very hot a Nature, they indicate a Refrigeration, which in acute Diſeaſes is always a Proof, that the natural Heat is, in a manner, extinguished. This, perhaps, was the Caſe of the young Man of *Melibæa*, 3 *Epid. ſEgr. 16.* of whom *Hippocrates* ſays, “That he labour'd under a continual Palpitation of the Heart, which never “left him; and that his Urine was oily.” All Palpitations, therefore, critical ones excepted, in acute Diſeaſes, are bad; but thoſe in particular, which for a conſiderable time affect the whole Body, or ſome one of the principal Viſcera, are pernicious to the laſt Degree. But the perpetual Malignity of thoſe Palpitations is confirm'd by other bad Signs, ſuch as thoſe which indicate the crude State of the Diſtemper, or portend a fatal Event, as it happen'd in the above-mention'd Caſes of *Silenus*, the Wife of *Philinus*, the phrenetic Patient, and the young Man of *Melibæa*, where thoſe Palpitations appear'd in a crude State of the Diſeaſe, and attended with other mortal Signs.

**PALTIFFERA ARBOR.** *De Laet.* A large Tree, which grows in *America*, bearing a Fruit like a Pear, which the *Peruvians* call *Palta*; and which is preſerved with Sugar, and given to the Sick; I ſuppoſe, as a Cooler.

**PALUDAPIUM.** See **APIUM.**

**PALUMBUS.** *Oſic. Schroed. 5. 312. Schw. A. 313. Bellon. des Oyſe. 308. Gefn. de Avib. 272. Jonaſ. de Avib. 63. Palumbus torquatus. Will. Ornith. 135, Raii Ornith.*

\* In the *Geneva* Edition, Fol. 1657, we read, *παλμοὶ δὲ ἐν τῇ στήματι, ἀλγυ πολλοὶ, &c.* “She had Palpitations over all “her Body, talked much, &c.”



# P A N

135. Ejusd. Synop. A. 62. Charlt. Exer. 85. *Palumbus major seu torquatus*. Aldrov. Ornith. 2. 484. Mer. Pin. 175. THE RING-DOVE.

It is an Inhabitant of the Woods; the Virtues are much the same with those of the common Pigeon, or Dove; the burnt Feathers are said to cure the Jaundice, and to be good for the Stone and Dysury. Dale from Schröder.

PAMPATHIES. The Name of a Plaister described by *Paulus Aegineta*. L. 7. C. 17.

PAMPHILLON. The Name of a Plaister described by *Galen*, de Comp. M. p. G. L. 1. C. 17. and L. 3. C. 14.

PAMPINIFORME CORPUS. The Veins and Arteries of the Testicles, included in a common Coat, which are curled and knotty, resembling the Tendrils of Vines.

PAMPINUS. A Leaf, or Tendril, of a Vine.

PANACEA, *πανααία*, from *πᾶν*, the Neuter of *πᾶς*, all, and *ἄλσθ*, a Remedy. A pompous Title of many Remedies both among the Antients and Moderns: Thus the *Arcanum Duplicationum* is call'd *Panacea Duplicata*. Many Preparations of Antimony are, also, called by this Name: Thus, besides that given by this Title, under the Article ANTIMONIUM, there are two others, one of which is thus prepared:

Take of Antimony, six Ounces; Nitre, ten Ounces; common Salt, one Ounce and an half; and of Charcoal, one Ounce. Let them all be made into a fine Powder, and well mixed, and be put into a red-hot Crucible, by half a Spoonful at a time: Continue the Fire a quarter of an Hour after. Then either put it into a Cone, or let it cool in the Crucible; and there will be three Substances, as, in the Bottom, a little Regulus; above that, a compact Matter, something like the Liver of Antimony; and, upon the Surface, a more spongy Mass. Separate them from one another, and put by the Regulus: Powder the other two, and wash them apart, till they have no Taste of the Salts: Dry them gently, and keep for Use.

The uppermost Substance is counted the best, and is of a fine golden Colour, when wash'd; the middle Substance is not of so pleasant a Colour, and works more churlishly. The Regulus is equal to the Regulus of Antimony. The Operation is emetic and cathartic; and it is given in the Pox, Gout, Dropsy, Scurvy, and all obstinate chronic Cases. The Dose is from two to five or six Grains. This is the Basis of Mr. *Lockyer's* Pills, which have so long been a celebrated Purge. If ten Grains of the finer Sort of this Panacea be mixed with white Sugar-candy, one Ounce, in a fine Powder, and made up into a Mass, with the Mucilage of Gum Tragacanth, it may be divided into an hundred small Pills; of which one, two, or three, may be taken at a time, and they will gently work by Vomit and Stool.

The other antimonial Panacea is thus prepared:

Take of Antimony, four Ounces; grind it to a most subtile Powder; put it into a Matras; and pour upon it one Pound of strong capital Lees of the Soap-boilers. Set them to digest on warm Sand for four or five Days, and shake them often; then add some warm Fountain-water; shake it well about; let it stand for two or three Seconds of Time, and pour it off into a clean Pan; repeat that Ablution, till all the brown Powder is separated from that which appears like crude Antimony; to which put more capital Lees, and proceed in all things as before, till all the Antimony is brought into a subtile brown Powder; which wash well from its Salts, dry it, and keep for Use.

This is not distinguishable from the *Ruffi's* Powder in its Operation; and as the present State of the Fluids is, it proves either emetic, cathartic, diaphoretic, or diuretic. Its Dose is from five to thirty Grains.

There are, also, several mercurial *Panaceas*.

PANAETHES. The Name of a Plaister described by *Actius*, *Tetrab.* 4. *Serm.* 3. *Cap.* 13.

PANARTIUM. A Whitloe. See PARONYCHIA.

PANATA, or PANATELLA. Panada.

PANAX ASCLEPIUM. A Name for the *Ferula*; *minor ad singulos nodos umbellifera*.

PANAX CHIRONIUM. A Name for the *Helianthemum*, *vulgare, flore luteo*.

PANAX COLONI. A Name for the *Galeopsis*; *palustris*; *Betonica folio, flore variegata*.

PANAX HERCULEUM. A Name for the *Pastinaca*; *Olu-fatri folio*.

PANCAIA AUREA. The Name of an Antidote described by *N. Myrepsus*, *Secl.* 1. C. 445.

PANCARPIA, *παγκαρπία*. The Name of a sort of Cake,

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much used at *Alexandria*, which was covered with Paper, in order to make it keep the longer.

PANCASEOLUS. A Name for the BULBOCASTANUM.

PANCHRESTOS. A pompous Name for several *Collyria*, mentioned by *Galen*, and *Paulus Aegineta*. It imports, Good against every thing.

PANCHRYSOS is, also, an Epithet for some *Collyria*, importing, all golden.

PANCHYMAGOGUM, *παγχυμαγωγόν*, from *πᾶς*, all; *χυμῶς*, Humour; and *ἔγω*, to bring away. The Name of some cathartic Extracts, which have the Reputation of purging off all Kinds of Humours. The most celebrated of which are that of *Crollius*, and that of *Hartman*.

The *Extractum Panchymagogum* of *Crollius* is thus prepared:

Take of the Pulp of Coloquintida, one Ounce and an half; of the Ingredients which compose the *Pulvis Diarrhodon Abbatis*, good Agaric, of each one Ounce; of black Hellebore, two Ounces. Powder them all grossly, and put them into a Matras; pour upon them Rain-water distilled, four Fingers above the Mixture; stop the Matras close, and set it in Digestion in hot Sand, or in Horfe-dung, three or four Days, and shake the Vessels every now-and-then. After this, pass your Infusion through a Cloth: Pour upon the Residue a like Quantity of the same Liquor; let it infuse as before; then strain and express it strongly; mix your Infusions; and let them settle, until they become clear; decant them, and evaporate the Liquor in an earthen Pan, in a Sand-heat, with a little Fire, to the Consistence of a Syrup; then mix with them of Rosin of Scammony, half an Ounce; of Extract of Aloes, two Ounces: Evaporate the Whole to the Consistence of an Extract: You will have four Ounces of it.

This is much recommended by some in hypochondriacal and maniacal Affections, to be frequently repeated from one Scruple to two in Pills; tho' I believe it is not ready made in the Shops.

The *Panchymagogum* of *Hartman* is thus prepared:

Take of Sena-leaves, two Ounces; of the best Rhubarb, one Ounce and an half; Root of black Hellebore, one Ounce; white resinous Turpeth, Polypody of the Oak, Trochisci Alhandal, and Troches of Agaric, of each half an Ounce; of the internal Part of the Seeds of Carthamus, and of the best red Myrrh, each three Drams; of the *Species Aromatica Caryophyllata*, and of the *Species Diambræ*, each one Dram; and of Citron-peel, one Dram.

After these Ingredients are cut and bruised, make an Extract of them with Spirit of Wine, and Cinnamon-water, each a Pint and an half; then express the Liquor; then let another Extract be made from the Fæces, with weak Cinnamon-water alone; and strain it off. To this Extract, add three Ounces of the Extract of Aloes, prepared with Water of Betony, or Male Speedwell. Mix all together, and inspissate to a due Consistence, adding ten Grains of the Oil of Cloves.

The Dose is from half a Scruple to a Scruple and an half. *Hartman in Crollium*. *Schrod. Pharmacop.*

PANCOENOS, *πάγκωνος*, from *πᾶν*, all, and *κωνός*, common. The same as *Epidemus*, Epidemical.

PANCRATIANUS PULVIS. The Name of a Powder described by *Marcellus Empiricus*, *Cap.* 31.

PANCRATIUM. A Name for the *Scilla vulgaris*; *radice rubra*. PANCRATIUM was the Name of an Exercise which was used by the Antients, and consisted of a Mixture of Wrestling and Boxing.

PANCREAS. The *Pancreas* is a long flat Gland, of that Kind which Anatomists call conglomerate, situated under the Stomach between the Liver and the Spleen. Its Figure resembles that of a Dog's Tongue, and it is divided into two Sides, one superior, the other inferior; two Edges, one anterior, the other posterior; and two Extremities, one large, which represents the Basis of a Tongue, and one small, and a little rounded, like the Point of a Tongue.

The Pancreas is situated transversely under the Stomach, in the Duplication of the posterior Portion of the Mesocolon. The large Extremity is connected to the first Incurvation of the Duodenum, and from thence it passes before the rest of that Intestine, all the Way to its last Incurvation; so that a great Part of the Duodenum lies between the Pancreas, and the



the Vertebrae of the Back. The small Extremity is fixed to the Omentum, near the Spleen.

The Pancreas is composed of a great Number of soft glandular Molecules, combined in such a Manner, as to exhibit the Appearance of one uniform Mass on the Outside, the Surface of which is rendered uneven, only by numerous small Convexities more or less flattened. When these Molecules are separated a little from each other, we find, along the Middle of the Breadth of the Pancreas, a particular Duct, in which several smaller Ducts terminate laterally on each Side, like small Branches in a Stem.

This Canal, named *Ductus Pancreaticus*, or *Ductus Virsungi*, from the Discoverer of it in the human Body, is very thin, white, and almost transparent; and the Extremity of the Trunk opens commonly into the Extremity of the Ductus Cholidochus. From thence it diminishes gradually, and terminates in a Point, next the Spleen. The small lateral Branches are, likewise, pretty large near the Trunk, and very small toward the Edges of the Pancreas, all of them lying in the same Plane, like the Branches of the common Filix, or Fern.

The Pancreatic Duct is sometimes double in Man, one lying above the other. It is not always of an equal Length, and sometimes runs in a winding Course, but always in the same Plane; and it is nearer the lower than the upper Side of the Pancreas. It pierces the Coats of the Duodenum, and opens into the Ductus Cholidochus, commonly a little above the prominent Point of the Orifice of that Canal; and sometimes it opens immediately into the Duodenum.

In Man I observed, that where the great Extremity of the Pancreas is connected to the Curvature of the Duodenum, it sends out an Elongation, which adheres very closely to the following Portion of the Intestine; and, upon a careful Examination, I found a particular Pancreatic Duct, ramified like the large one, which ran toward and intersected this great Duct, into the Extremity of which it opened, after having perforated the Duodenum. This Portion I term Pancreas Minus, and it sometimes opens separately into the Duodenum, in which we, likewise, observe several small Holes round the Ductus Cholidochus, which answer to the Pancreas.

The Arteries of the Pancreas come from the Pylorica Duodenalis, and principally from the Splenica, which adheres very closely to the whole lower Side of the Pancreas near the Posterior Edge; and it sends off in its Passage a great many Ramifications, named Arteriae Pancreaticae; which go off from each Side, more or less transversely. It receives also some small Ramifications from the Gastrica major, and Mesenterica superior.

The pancreatic Veins are Branches of the Splenica, one of the principal Branches of the Vena Portae major, or Ventralis. This Vena Splenica runs likewise along the lower Side of the Pancreas, near the Edge, in a shallow Depression, formed in the Substance of the Gland. These Veins answer to the Arteries of the same Name, and there are likewise other small Veins, corresponding to the small Arteries, which are Productions of the great Mesaraica, &c.

The Nerves of the Pancreas come partly from the Plexus Hepaticus, partly from the Plexus Splenicus, and partly from the Plexus Mesentericus superior; and it likewise receives some from the flat Ganglion, or plexiform Intertexture, spoken to under the Article NERVUS, and mentioned by the Name of the transverse Rope.

The pancreatic Duct is not only double in some Subjects, as has been said, but the collateral Branches have Communications in form of Islands, in several Places within the Body of the Pancreas. See HEPAR. *Winslow*.

The Pancreas, by means of its glandular Structure, secretes, from the Coeliac Arteries, an Humour into one common Duct, which terminates in the Duodenum, into which it discharges all the Quantity of Lymph secreted.

This pancreatic Juice is almost insipid, or but gently saline, limpid, continually secreted in large Quantities by the Motion, Pressure, Warmth, and Contiguity of the Heart; but 'tis most copiously discharged, when during Digestion the Stomach is turgid. It is neither acid nor alkaline, but bears a great Resemblance to the Saliva, not only with respect to its Origin, but also with respect to its Qualities, and the Vessels subservient to its Generation. In those who are alive, this Juice is mixed and incorporated with the Bile; and, being lodged in the same common Duct, produces no Marks of any intestine Motion, but is equally mixed with it, or is discharged alone, and by itself, into the empty Intestines. Hence the Uses of the pancreatic Juice, when mixed and incorporated with the Chyle, the Faeces, the Bile, and the Mucus, are to dilute the thick Parts of the Fluids, to produce a due Mixture of them, to render the Chyle capable of mixing with the Blood, to fit it for its Passage thro' the Lacteals, to correct the acrimonious Parts of the Fluids, to correct the Viscidity and

Bitterness, and to change the Colour of the Bile, and to mix it intimately with the Blood, to serve as a proper Menstruum, or Vehicle, so to change the Tastes, Smells, and Qualities of Aliments, as that they assume nearly the same Nature; and, lastly, to go and return, and consequently answer all these Ends, with the utmost Expedition. *Boerhaav. Instit.*

The ancient Anatomists denied, that the Pancreas had any Kind of Action; and asserted, that it served to support the Vessels, and prevent their Rupture; and that it was a kind of Pillow or Cushion to the Stomach, to prevent its being hurt by the Vertebrae, when it was too full: But more modern Anatomists have ascribed a very considerable Action to it, which is that above specify'd. The Pancreas is subject to Diseases capable of greatly injuring the whole Body: But, like the Mesentery, it is in a peculiar manner subject to Obstructions and Tumors, like other glandulous Bodies.

*Riolanus* observed a Scirrhus of the Pancreas in the celebrated Historian *Augustus Thuanus*, who, during four Years before his Death, among other Symptoms, perceiv'd a continual Sense of Weight about the Region of his Stomach, especially when he stood or walk'd; but his Hypochondria were neither hard nor tumid. Upon laying open his Body, his Pancreas was found as large as his Liver, entirely scirrhous, and full of a large Number of Globules resembling a Pigeon's Egg.

But, as the Pancreas is covered by the Stomach; the Tumors of it are with Difficulty discovered by the Touch; and this is the Reason why such Tumors are scarcely ever mention'd by practical Authors, and even such of them as are mention'd have not been discover'd till after the Death of the Patients. But the Presence of Tumors in the Pancreas may be pretty probably guess'd at, from the Symptoms mention'd by *Riolanus* in *Thuanus*; if, for Instance, there is a Sense of Weight in the Region of the Stomach, without any Tumor or Hardness in the Hypochondria, whilst, at the same time, there are other Marks of latent Obstructions, such as those mention'd under the Articles HEPAR, LIEN, and MESENTERIUM. To these Signs we may, also, add a Pain, and other Disorders, of the Stomach, by reason of its Contiguity to the Part affected; and a Difficulty of Breathing, in consequence of a Compression of the Diaphragm. By these Signs I prognosticated, that a certain Gentleman of Distinction labour'd under a Scirrhus of the Pancreas; nor was I deceiv'd; for, as the Patient was very lean, by pressing with my Hand near the Side of the Stomach, I perceiv'd a certain Hardness, which, when compress'd with the Fingers, excited an intolerable Pain. And I have observ'd, that these Tumors of the Pancreas, are most generally incident to scorbutic Patients, since in them a Difficulty of Breathing, an Oppression and Sense of Weight in the Region of the Stomach, are for the most part observ'd; and these are, by *Engelmann*, *Sennertus*, and others, propos'd as the pathognomic Signs of a Scurvy.

Practical Authors furnish us with some Instances of Abscesses in the Pancreas, which, however, were not discover'd till after the Death of the Patients: But such Abscesses may be, in a great Measure, guess'd at from the Symptoms of the Patients, some of which are the same with those accompanying a Scirrhus of the Pancreas; but to these Signs may be added, a slow Fever, the almost inseparable Concomitant of internal Abscesses, long-protracted Watchings, short Sleeps; and after them, Weariness, Faintings, and cold Sweats.

The Cure of Obstructions, Scirrhuses, and Abscesses of the Pancreas, is the same with the Cure of those Misfortunes in the Liver, Spleen, and Mesentery. See HEPAR, LIEN, and MESENTERIUM. *River. Prax. Med. Lib. 13. Cap. 4.*

If the Patient has a Tumor under the Region of the Stomach, that is indolent, and it is attended with an obstinate Costiveness, we may be sure there is a Scirrhus of the Pancreas; especially, if any of the Causes of a Scirrhus have preceded. The pancreatic Juice dilutes the Faeces, and perhaps stimulates the Intestines, in some measure, to an Expulsion of their Contents; therefore, when there is a Defect of this, the Patient must be costive.

When a Person has a Cancer in the Pancreas, when fasting, he will feel a great Weight under the Stomach; after eating he is in extreme Pain, but more so, if he vomits; he will have a Diarrhoea, and then fall into an Atrophy, and die.

A copious Use of Cherries, perfectly ripe, is very much recommended in a Scirrhus of the Pancreas; and they are preferable to Currants, which, have something acrimonious in them, and are prejudicial to hysterical Women.

PANCRENE. A Name for the PANCREAS.

PANDALEON. This is a Medicine appropriated to Disorders of the Breast and Lungs, invented by the *Arabians*, and later Physicians; consisting of grateful Ingredients, answering the



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The same End with a Linctus, but different from it in Form, in which it agrees with Troches; from which, however, it differs in this, that Troches are made in a certain Figure, whereas the *Pandaleon*, after the Sugar is duly boil'd, and the Ingredients sufficiently mix'd, is pour'd into a Box, and becomes indurated; and a sufficient Quantity of it is to be taken, either in a Spoon, or on the Point of a Knife.

The *Pandaleon*, therefore, is a solid Medicine like a Cake, receiving its Form from the Box into which it is pour'd; consisting of Powders, pectoral Conserves, and Lozenges of Sugar, and answering the same Ends with a Linctus. *Morelli Method. præscrib. Form. Remed.*

PANDALITIUM. The same as PARONYCHIA.

PANDEMIUS. Epidemical.

PANDICULATIO. Pandiculation, or Stretching. See OSCITATIO.

PANDIPAVEL. A Name for the *Momordica*; *Zeylanica*; *pampinea fronde*; *fructu longiori*.

PANEM-PALKA. A spurious Species of Nutmeg-tree.

PANJA-PANJALA. H. M. The Name of a very tall Tree, which grows in great Plenty in *Malabar*, producing a kind of Cotton.

The Flowers, and tender Fruits, boiled, and reduced to the Form of a Cataplasm, are apply'd to the Crown of the Head, as a Remedy for the Head-ach and Vertigo. *Raii-H. P.* 1899.

PANICULA. A Panicle. See the Explication of Terms under the Article BOTANY.

*Panicula* is, also, a Diminutive of PANUS. A Species of Tubercle.

PANICUM.

The Characters are;

The Spike consists of innumerable thick Seeds disposed in lesser Spikes, so as to appear like a Cluster.

*Boerhaave* mentions nine Species of *Panicum*; which are,

1. *Panicum Germanicum*; five *Panicula minore*. *C. B. P.* 27. *Theat.* 516. *Raii Hist.* 2. 1247. *Tourv. Inst.* 515. *Boerb. Ind. A.* 2. 158. *Panicum*. Offic. *Panicum sylvestre*. *Ger.* 79. *Panicum vulgare*. *Ger. Emac.* 85. *Panicum album vulgare*. *Park. Theat.* 1139. PANIC.

This is a Grain rarely seen in *England*; it grows to be as tall as Wheat, with much broader Leaves, and firmer, thicker Stalks, bearing an Ear, or Spike, four or five Inches long, and above an Inch broad, composed of a great Number of loose, hairy lesser Spikes, full of small round Seed, less than Millet, and not so shining; it is sown in divers Parts of *Germany*.

Panic is reckoned to be drying and binding, and good for those who are troubled with Spitting of Blood, and for all Sorts of Fluxes. *Miller's Bot. Off.*

*Panicum*, called by the Greeks *ἔλυμος* (*Elymus*) and *μαλίμη*, (*Meline*) has its Name, as *Pliny* says, *Lib.* 18. *Cap.* 7. à *Paniculo*, from its Panicle.

In Taste, Qualities, and Virtues, it answers to Millet, and may be used instead thereof, in Food, Bread, and Medicine; whence it is in much Request, as *Chysius* says, throughout *Germany*, *Hungary*, and *Bohemia*; for it makes Part of their Aliment, and Puddings are prepared of its husked Seed, which have no ill Taste. But *C. Bauhine* says, after the Antients, that it is of bad Juice, difficult of Digestion, generates Flatulencies, binds the Belly, and is of a drying and refrigerating Quality; for which Reasons Millet is preferable to it on all Accounts. Milk mixed with it, in Puddings, has been found salutary, as removing, or at least diminishing, the aforesaid Inconveniences. A Pudding, or Ptifan, prepared of it with Milk, is commended for Pains of the Head proceeding from Bile, for an Hamoptoe, and nocturnal Pollutions. *Galen* says, that it is of some Efficacy, as is also Millet, in Fluxes of the Belly: For this Purpose, *Pliny* tells us, it must be boiled in Goats-milk, and taken twice a Day; and, being so used, it cures also the Gripes: Externally apply'd, in form of a Cataplasm, it dries and refrigerates. *Raii H. P.* 1248.

The Plant is aperitive, and, boiled, like Rice, in Milk, is good to correct the Acrimony of the Humours. *Hist. Plant. adscript. Boerhaav.*

2. *Panicum*, *Italicum*; five *Panicula majore*. *C. B. P.* 27. *Theat.* 519.

3. *Gramen*, *Panicum*; *Spica divisâ*. *C. B. P.* 8. *Theat.* 136. *Panicum Herbariorum*, *sylvestre*. *Lob. Ic.* 42.

4. *Gramen*, *Panicum*; five *Panicum sylvestre*; *aristis armatum*. *C. B. P.* 8. *Theat.* 137. *M. H.* 3. 189.

5. *Gramen*, *Panicum*; *Panicula simplicis*; *ἔλυμος γῶσις*, *C. B. P.* 8. *Theat.* 138. *M. H.* 3. 189. *Panicum sylvestre dictum*, & *Dent Caninus*. 1. *I. B.* 2. 443.

6. *Gramen*, *Panicum*; *spicis nigris*. *C. B. P.* 8. *Theat.* 140.

7. *Gramen*, *Alopecuroïdes*; *spica rotundiore*. *C. B. P.* 4. *Theat.* 56. See *ALOPECUROS*.

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8. *Gramen*, *Alopecuroïdes major*; *spica longiore*. *C. B. P.* 4. *Theat.* 58.

9. *Gramen*, *Alopecuroïdes*; *aquaticum*, *geniculatum*. *Boer. Ind. alt. Plant. Vol.* 2. p. 158.

PANIS. Bread. This is a Preparation of Grain, not only useful as an Aliment, but, also, a Medicine highly proper in many Cases. Thus *Hippocrates*, in his Book *de Jalubri Dieta*, advises Persons accustomed to a laborious Life, when seiz'd with Fluxes, in which the Excrements discharg'd resemble crude Aliments, to eat toasted Rye-bread soak'd in Wine. 'Tis sufficiently known from Experience, that Bread made of fine Flour, when toasted and soak'd in generous Wine, with the Addition of a little Cinnamon or Sugar, is a Medicine of the greatest Power and Efficacy, in restoring lost and impair'd Strength. This is an Analeptic of all others the most proper and beneficial for those, who, in consequence of uncommon Fatigue, or violent Hæmorrhages from Wounds, require a speedy and seasonable Recruit of their Strength. For this Reason, the Prophet *David*, in Psalm 104. Ver. 5. tells us, that Wine cheers the Heart of Man, and Bread supports it. *Henricus ab Heer*, in *Obs.* 18. informs us, that by the Use of these two powerful Analeptics, Bread and Wine, he restor'd a certain Man to his usual Strength, after he had by immoderate Venery brought himself to the very Brink of the Grave; whereas, if, according to the Advice of another Physician, he had used Venesection, he had certainly fallen a Sacrifice to that preposterous Piece of Practice. *Boerhaave*, in his *Materia Medica*, in Fevers and other Disorders, highly extols the analeptic Virtues of a Decoction of Bread, which he orders to be prepar'd in the following Manner.

Take of wheaten Bread, sufficiently fermented, with the Bran, eight Ounces, and of pure Spring-water, three Pints: Boil for an Hour, in a new earthen Vessel close stopp'd. Then strain it thro' a Sieve; and to each Pint of the strain'd Decoction, add half an Ounce of Citron-juice; distil'd Cinnamon-water, two Drams; of Rhenish Wine, four Ounces; and of Sugar, a Quantity sufficient to render it palatable.

*Reusnerus*, in his Observations, gives us a memorable Instance of a Woman, who, after having her Life several times endanger'd by Abortion, at last, about the Middle of her Gestation, began every Morning, upon an empty Stomach, to eat a small Piece of Bread soak'd in Malmsey Wine; by which means Abortion was happily prevented. *Velschius*, also, informs us, that, after a certain Woman had, notwithstanding the most proper Medicines, suffer'd Abortion seven times, he prevented the like Misfortune, by Bread and Malmsey Wine used in the same Manner as in the former Case. I have often observ'd, that butter'd Toast used for Breakfast, by correcting the violent Acid in the Primæ Viæ, removes Uneasiness of the Præcordia, Vertigoes, Head-achs, and Faintness. I can also, from Experience, justly recommend the same Breakfast in epidemic, morbid Constitutions of the Weather, in which the Atmosphere is impregnated with Effluvia and Exhalations of a noxious Quality.

As Bread, taken internally, is of an highly cordial and analeptic Quality; so, when externally used, it also produces surprising Effects. Thus *Diogenes Laertius*, in *Lib. de Vit. Philosoph.* informs us, that the incomparable *Democritus*, when very old, and perceiving his Death fast approaching, at his Sister's Request, protracted his Life for three Days, by no other means, than the Smell of recent Bread. This Doctrine is, also, confirm'd by *Laurentius Joubertus*, who informs us, that Persons are recover'd from Deliquiums, by applying Bread to their Nostrils. I have, also, found from Experience, that Bread bak'd with Caraway-seeds, when cut up, and applied to the Ears, as soon as 'tis taken out of the Oven, is an excellent Remedy for Deafness. This is, also, confirm'd by *Riverius*, in *Prax. Med. Lib.* 3. *Cap.* 2. And *Hieronymus Reusnerus*, in *Obs. Med.* 55. informs us, that *Henry Count of Stolberg*, when render'd deaf by the Noise of Cannons, was greatly reliev'd by applying to his Ears, every Morning, recent Bread bak'd with Juniper-berries. The outer Crust of household Bread, cut round, moderately excavated, and sprinkled with good tepid Wine-vinegar, with an Addition of Cloves and Nutmegs, applied to the Abdomen, immediately stops Vomitings and Fluxes attended with Gripes. Besides, in order to prevent Abortion, there is hardly any more efficacious Medicine, than toasted Bread soak'd in generous Wine, with an Addition of aromatic Substances apply'd to the Navel. *Hoffman de Remed. Domest. Præstantia*.

PANIS CUCULI, in Botany, is the ACETOSELLA.

PANIS PORCINUS is the CYCLAMEN.

PANITS-



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PANNITSJICA. The same as JANIPABA.

PANNICULUS ADIPOSUS. See. CELLULOSA MEMBRANA.

PANNICULUS CARNOSUS This is thus described by Drake.

Immediately under the Fat lies the *Panniculus Carnosus*, which consists of a double Membrane, the upper of which makes the *Membrana Adiposa*; the under, which is, also, call'd *Membrana Musculorum Communis*, or *Musculosa*, is, in some Places, interwoven with pretty thick muscular Fibres, which are suppos'd to contract and corrugate the Skin; tho' this Action of it is visible no-where in an human Body, except on the Forehead, or, in some, the whole Scalp. It is spread all over the Body, but very unequally in point of Thickness; and has its Arteries, Veins, and Nerves, from those of the adjacent Parts.

The particular Use of it is to support, and be, as it were, a Basis to the Globules of Fat. It serves, in general, as all other Membranes do, to wrap, defend, and connect the Parts together. Its different Names, taken either from the Structure, or the Situation, have occasion'd some to multiply it, tho' through Mistake only.

But *Winslow* denies the Existence of the *Panniculus Carnosus*. Besides the *Cuticula*, *Cutis*, and *Membrana Adiposa*, the Antients, says he, reckon'd two others, the *Panniculus Carnosus*, and *Membrana Communis Musculorum*.

The *Panniculus Carnosus* is found in Quadrupeds, but not in Men, whose cutaneous Muscles are in a very small Number, and most of them of a very small Extent, except that which I call *Musculus Cutaneus* in particular; but even that Muscle cannot, in any tolerable Sense, be reckon'd a common Integument.

There is no common Membrane of the Muscles, which covers the Body like an Integument; it being no more than particular Expansions of the Membranes of some Muscles, or aponeurotic Expansions from other Muscles.

The Elongations of the Lamina of the *Membrana Adiposa*, or *Cellularis*, may also have given Rise to this Mistake, especially in such Places, where this Membrane is closely united to the proper Membrane of the Muscles. *Winslow*.

PANNUS. Besides the common Signification of this Word, which is Woollen Cloth, it imports a Disorder of the Eye, (see OCLUS) and, also, a Spot, or Mark, upon the Skin, either arising from a Venereal, or any other Cause. *Castellus*.

PANOCHIÆ. Bubos in the Groin. *Fallopins*.

PANTAGATHOS ANTIDOTUS. The Name of an Antidote describ'd by *Nicolaus Myrepsus*, Sect. 1. Cap. 271, and 273. It imports, Good for every thing.

PANTAGOGUS; from *παῖρ*, all; and *ἄγω*, to bring away. A Medicine which brings away all Sorts of Humours.

PANTHEÆ. Pensile Beds.

PANTHERA. See PARDUS.

PANTICES. The Intestines. *Castellus*.

PANTOLINUS PASTILLUS. The Name of a Pastil, or Troche, describ'd by *Nicolaus Myrepsus*, Sect. 42. C. 156.

PANTOLMIUS. The Name of a Troche, in *Paulus Aegineta*, L. 7. C. 12.

PANUS, PANIS, PANICULA, and PANULA, all import a sort of crude Bile.

PANYGRON. The Name of a sort of Ointment, describ'd by *Oribasius*, de Locis affectis, L. 4. 121.

PAPAYER.

The Characters are;

The Leaves are alternate; the Calyx is biphyllous and caducous: The Flower is rosaceous, tetrapetalous, surrounding the Base of the Ovary, and furnished with very numerous Stamina: The Fruit is oval, and cover'd with its own Tube, (which is of a very singular Figure, being a radiated Lid) and divided by a thin Membrane, into as many Capsules, or Cells, as there are Rarii in the Lid: The Seeds are minute, numerous, and adhere to the Membranes which form the Partitions, as to their Placentæ.

*Boerhaave* mentions thirty-four Species of *Papaver*; which are,

1. *Papaver*; hortense; semine albo; fativum Dioscoridis; album Plinio. C. B. P. 170. Raii Hist. 1. 853. Tourn. Inst. 237. Boerb. Ind. A. 279. *Papaver album*. Offic. *Papaver fativum album*. Ger. 296. Emac. 369. *Papaver simplex album fativum*. Park. Theat. 365. *Papaver fativum*. J. B. 3. 390. WHITE POPPY.

The white Poppy, which is cultivated for medicinal Uses, has many large and long whitish-green Leaves, very much torn, and cut in about the Edges. The Stalk is smooth and round, growing to be five or six Feet high, having the Leaves which grow on it shorter and broader, and somewhat encompassing it: Towards the Top, it is divided into three or four Branches,

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having at the End of each a round Head, hanging down at first; but, as the Flower comes on to open, it grows erect. The Flower consists of four large white Leaves, inclosed in a Couple of green, skinny Husks, which soon drop off, when the Flower opens: When the Flowers are fallen, which soon happens, the Seed-vessel grows to a great Bigness, being frequently as big as a large Orange, round, and having a denticillated Crown on the Head: It is divided into several membranous Partitions, to the Sides of which grow the small white Seed. The whole Plant is full of a bitter Milk, of a strong, virose, unpleasant Smell; it is sown in Fields and Gardens, and flowers in June, and the Heads are fit to be gathered at the End of July. From these Heads the Opium is produced, whereof the best comes from Turkey; there being vast Quantities of these Poppies sown in the Fields of *Natolia*. See OPIUM.

Of the dry Poppy-heads, infused and boiled in Water, is made the Syrupus e Meconio, or Diacodium.

The Seeds are much used in Emulsions, being cooling and good in Fevers, and inflammatory Distempers; as, likewise, for the Strangury, and Heat of Urine. *Miller's Bot. Off.*

The distilled Water of Poppy, and its Oil, but especially Opium, are narcotic and anodyne: These Qualities proceed not from its Coldness, as some will have it; for its bitter Taste, rank Smell, Inflammability, and exulcerating Effects, evince the contrary; but from some other Property as yet unknown. It is, however, of excellent Service in the Diarrhœa, Dysentery, Catarrhs, and Coughs, and other Disorders; tho' it is to be used with the greatest Caution. For the most severe Pain of an Ophthalmy, *Sennertus* prescribes, as an effectual Remedy, an Emulsion of the Seeds of Poppy, with Milk, Water of Lettuce, and Decoction of Fenugreek. *Raii H. P.*

2. *Papaver*; hortense; semine albo; flore leviter purpureo. C. B. P. 170.

3. *Papaver*; hortense; semine albo, flore cinereo, ungue purpureo. C. B. P. 170.

4. *Papaver*; hortense; semine albo; flore candido, rubris maculis infecto. C. B. P. 170.

5. *Papaver*; hortense; semine nigro; sylvestre Dioscoridis, nigrum Plinio. C. B. P. 170. Raii Hist. 1. 853. Tourn. Inst. 237. Boerb. Ind. A. 279. *Papaver nigrum*. Offic. *Papaver fativum nigrum*. Ger. Emac. 370. *Papaver fativum simplex nigrum*. Park. Theat. 366. BLACK POPPY.

This Poppy does not grow so tall as the white; but, in other respects, is much like it. The principal Difference is in the Flower, which, in this, is of a purple Colour, with a black Bottom; and in the Heads, which are much less than the white, and contain a black Seed. The Roots, both of this and that, are sticky, and perish when the Seed is ripe; it is sown in Gardens, and flowers in June.

The Heads are now rarely used, being left out of the Syrupus e Meconio, in the last Edition of the Dispensatory: But the Leaves are put into cooling Ointments, being accounted good for Burns and Inflammations, and hot Swellings, and are an Ingredient in the Unguentum Populeum. *Miller's Bot. Off.*

6. *Papaver*; flore pleno, rubrum. H. Eyst. Æst. o. 12. F. 7. Fig. 1.

7. *Papaver*; flore multiplicato, incarnato. H. Eyst. Æst. o. 12. F. 8. Fig. 1.

8. *Papaver*; flore multiplici, purpurascens. H. Eyst. Æst. o. 12. F. 9. Fig. 2.

9. *Papaver*; laciniatum, rubrum, unguibus purpureis. H. Eyst. Æst. o. 12. F. 9. Fig. 2.

10. *Papaver*; laciniatum, rubrum, unguibus albis. H. Eyst. Æst. o. 12. F. 9. Fig. 2.

11. *Papaver*; multiplex, album, oris rubicundis. H. Eyst. Æst. o. 12. F. 10. Fig. 2.

12. *Papaver*; flore miniato, pleno. H. Eyst. Æst. o. 12. F. 10. Fig. 2.

13. *Papaver*; flore pleno, argentei coloris. H. Eyst. Æst. o. 12. F. 10. Fig. 2.

14. *Papaver*; flore pleno, album. C. B. P. 171.

15. *Papaver*; flore pleno, violaceo. C. B. P. 171.

16. *Papaver*; flore pleno, eleganter striato, laciniato. H. Edinb.

The Characters of the following single Species are;

A very large Capsule and Flower, and a very hairy, indented, and dark-green Leaf.

17. *Papaver*; Orientale; hirsutissimum; flore magno. T. Cor. 37.

The Characters of the following fourteen Species are, a lesser Capsule and Flower, and dark-green Leaves, with deeper fags.

18. *Papaver*; erraticum; majus; *poria* Dioscoridi, Plinio, Theophrasto. C. B. P. 170. Tourn. Inst. 238. Boerb. Ind. A. 279. *Papaver rubrum*, *Rheas* & *erraticum*. Offic. *Papaver*, *Rheas*. Ger. 299. Emac. 377. Raii Hist. 1. 855. *Papaver erraticum Rheas*, *sive sylvestre*. Park. Theat. 367. *Papaver erraticum rubrum campestre*. J. B. 3. 395. *Papaver*



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*ver laciniato folio, capitulo brevior, glabro, annuum, Rhæas didum.* Raii Synop. 3. 308. RED POPPY, or CORN-ROSE.

The Leaves of this Poppy are very rough and hairy, divided into seven or nine narrow indented Sections, that at the End being the largest: The Stalk is rough and branched, beset with the like Leaves; having on the Tops of the Branches large four-leav'd scarlet Flowers, with a black Spot on the Bottom of each Leaf. The Head is but small, covered with a denticillated Cap, or Crown, containing very small brown Seed. The Stalks and Leaves are of a yellowish-bitter Juice, of a strong Smell, but not so virose as the two former; it grows every-where among the Corn, and flowers in June and July.

The Flowers of this Poppy are of a cooling, anodyne Nature, and useful in all inflammatory Fevers, particularly the Pleurisy and Angina: They are, in some measure, hypnotic, and causing Rest; and may be given when the Preparations of the former may not be ventured on: They are a noted Remedy against Surfeits, especially the Infusion of them in Brandy, or the Tinctura Papaveris Officinarum.

Official Preparations from the red Poppy are the simple Water, the Syrup, and Conserve of the Flowers, and the Tincture. *Miller's Bot. Off.*

The Flower of this Plant, which is the principal Part used in Physic, is glutinous, and gives much such a faint-red Colour to the blue Paper, as the Solution of Opium, by which it seems the Salt of the one is analagous to that of the other; but, in Opium, this Salt (which seems pretty near to Sal Ammoniac) is mixed with a great deal of fetid Oil; whereas, in the red Poppy, the Proportion of the Oil is much less than that of the viscous Phlegm. Thus the Flowers of this Plant are emollient, and good for Expectoration in Defluxions of the Breast, in Rheums, and in a dry Cough. They stanch Blood, and are gently sudorific. The distilled red Poppy-flower Water is prescrib'd, from three to six Ounces: The Tincture is given by Glass-fuls, for Defluxions of the Breast. This Tincture is impregnated sometimes with three or four Infusions, in each Quart of which is dissolved one Ounce of Sugar-candy. The following Ptisane is very good for a dry Cough: Boil three Ounces of Bugloss-root, and as much of that of Dog's-grass, in two Quarts of Water; pour the Decoction, boiling, upon one Ounce of red Poppy-flowers, and three Heads of white Poppy, cut small, and put up in a small Bag, so that they may be squeez'd: The dried Flowers of the red Poppy are drank in the Manner of Tea; there is, also, a Conserve and a Syrup prepared of them. *Martyn's Tournefort.*

Some apply the Herb to the Region of the Liver, in order to stop an Hæmorrhage from the Nose; and the same Virtue is ascribed to the Root. The Decoction of the middle Bark, or Rind of the Sambucus, or Ebulus, with the Syrup of Poppy, is a most effectual Sudorific; where we may observe, that Narcotics, added to Diaphoretics, or Diuretics, are of extraordinary Efficacy in provoking Sweat. *Raii Hist.*

19. Papaver; erraticum; majus; foliis florum variegatis. *H. R. Par.*

20. Papaver; erraticum; majus; flore albo. *C. B. P. 171.*

21. Papaver; erraticum; majus; flore carneo. *H. Edinb.*

22. Papaver; erraticum; majus; florum unguibus albis. *H. Edinb.*

23. Papaver; erraticum; flore pleno. *C. B. P. 171.*

24. Papaver; erraticum; flore pleno miniato. *H. R. Par.*

25. Papaver; erraticum; flore pleno igneo. *H. R. Par.*

26. Papaver; erraticum; flore pleno igneo, marginibus candidis.

27. Papaver; erraticum; flore pleno purpurascens. *H. R. Par.*

28. Papaver; erraticum; flore pleno phœniceo, unguibus albis.

29. Papaver; erraticum; minus. *C. B. P. 171.*

30. Papaver; erraticum; Pyrenaicum; flavo flore. *C. B. P. 171. Prodr. 92.*

31. Papaver; Orientale; tenuiter incisum; ad caulem floridum. *T. Cor. 17.*

The Characters of the three following, and last Species are, small, very finely jagged, and dark-green Capsule Flowers, and Leaves.

32. Papaver; erraticum; capite oblongo, hispido. *T. 238. Argemone, capitulo breviori. C. B. P. 172.*

33. Papaver; erraticum; capite longiore, hispido. *T. 238. Argemone, capitulo longiori.*

34. Papaver; erraticum; capite longissimo, glabro. *Tourn. Inst. 238. Boerb. Ind. A. 280. Argemone. Offic. Argemone capitulo longiore, glabro. Raii Hist. 1. 856. Papaver laciniato folio, capitulo longiore, glabro; seu, Argemone, capitulo longiore glabro. Raii Synop. 3. 309. LONG-HEADED POPPY.*

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It grows by the Sides of Ditches, flowers in June, and the Leaves and Juice are used in Medicine. A Cataplasm of the Leaves, as *Dioscorides* says, absterges the Albugo, and Films in the Eye, and mitigates Inflammations.

The Plant, says *Dale*, which I here exhibit for *Argemone*, comes nearest to, if it be not the very same with, the *Argemone* of *Dioscorides*, whose Description of it is as follows: *Argemone*, says he, has, in the Whole, the Appearance of the wild Poppy; but has Leaves like those of *Anemone*, divided; a red Flower; an Head like that of the red Poppy, but more oblong and wide at the Top; a round Root; and yields a Saffron-colour'd acrimonious Juice. *Dioscorides, Lib. 2. Cap. 208.*

The Name *Papaver* is from *Pappa*; that is, *Pap*; because, in former Times, Nurses mixed this Plant with their Childrens Pap-meat, as a Remedy against the Pain of the Colic.

The Plant deserves the highest Commendations, if it be rightly used. The Garden Papavers, tasted in hot Weather, while they are in their full Vigour, have a very aromatic Savour; the Juice is very aperitive; and the Bitterness of its Taste, which exceeds that of Bile itself, is not easily remov'd from the Palate. All the Parts of this Plant, if gathered in an hot Season, send forth a very strong Smell, which flies to the Head, and induces Sleep, by their volatile Mucus, in Conjunction with something of Acrimony and Bitterness. Poppies are all gently discutient, moderately inrastringing, lenient, demulcent, and narcotic; for which Reasons they are proper in Catarrhs proceeding from an acrid Lymph; for a Cough, Hoarseness, Spitting of Blood, Head-ach, excessive Hæmorrhages, an immoderate Flux of the Menstrues, and the flatulent Colic. The Head of this Plant consists of two Parts; the Head, which gives the Taste; and the Seeds, which are of a very mild Nature, and oily, but induce no Sleep. The Oil of the Seed tastes like Oil of sweet Almonds, and has the same Virtues: Hence in *Germany*, and other Countries, they are put in Cakes, which are very well tasted. What is just now said, is to be understood of the sixteen first Species. Some Physicians have been surpris'd at my prescribing four Ounces of Poppy-seeds, and said, they were enough to make a Person sleep to Death; but they were afraid without Reason, for the Seeds have the Taste of Almonds, and are endued with the same Virtues. The twelfth Species only is perennial; but, tho' it be very full of Milk, it affords no Opium. Those from the twelfth to the thirty-first, inclusive, are not very soporific; and the three last are not soporiferous at all. The Leaves of the Garden Poppies, bruised with Salt, or boiled, and made into a Cataplasm, and apply'd to Places afflicted with a Pain or Inflammation, mitigate the same, and are remarkably aperient; whence they are proper in the Rheumatism, Gout, and Sciatica. Of the Seeds are prepared Decoctions and Emulsions, which have nothing of a soporific Virtue, but are only demulcent. The Heads, when in a good State of Maturity, and without their Seeds, boiled in Milk, and taken to the Weight of an Ounce or two, very gently induce to sleep. Two Ounces of the Heads are equivalent to one Grain of Opium. *Hist. Plant. adscript. Boerhaav.*

## A METHOD OF PREPARING THE EXTRACT AND SYRUP OF POPPIES.

That this *British* Opium may be got to the greatest Advantage, both as to Quantity and Quality, the Culture and Management of the Poppies are to be taken care of. What I have found most successful, is to trench a Spot of new rich Ground, where Poppies had not grown the preceding Year; for, if they are continued several Years on the same Ground, they degenerate; and, chusing the ripest and whitest Seed of the great single-flowered *Turky* Poppy, I sow it in *March*, very thin and superficially, in Drills at two Feet Distance each, to allow room for Weeding. As soon as the young Plants spring up, I take most of them away, leaving only the strongest most thriving Plants, at about a Foot distant from each other. When the Heads of these come to their full Growth, but before they are ripe, I chuse a calm, warm, and Sun-shine Day to cut them off, at an Inch or less Distance from the Top of the Stalk, going backwards from the End, at which I begin the Lopping, to the other End. The Design of this Caution is, to save the milky Liquor, which rises to the cut Part of the Stalk, from being spilt by the Motion which the Wind or my Cloaths would make, and that the Heat of the Sun may make it thicken soon. What Heads are small, and with the Appearance of growing larger, are left to be cut afterwards. All the Heads are put into a Basket as they are taken off, and are allowed to lie there together for about two or three Days, till the Drops of Liquor, which runs out of them, thicken, and thereby are saved; after which they may be spread out on a Floor, or hang'd up on Strings to dry. Two or three Days after, I, in the same Manner, lop off such other Heads



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Heads of the Poppies, as are become large enough ; and, at the same time, cut off Pieces of two or three Inches Length from the Stalks of those formerly cut. This cutting of Heads and Pieces of Stalks I perform every second or third Day, till I observe no more Juice rise in the Stalks, keeping them always in a Basket some Days, and drying them afterwards as the first Heads were, that all the Juice may be saved ; only preserving some few of the best-grown Heads, and allowing them to ripen fully, that I may have Seed for sowing next Year.

The dried Heads and Stalks being cut and bruised, I infuse them some Hours in boiling-hot Water, and then boil them three or four Hours ; after which, I strain the Liquor strongly out, and allow it to depurate, by the grosser Parts subsiding, for a Day or two. The clear Liquor, which is poured off, I clarify with Whites of Eggs, and boil in the common Way of making Extracts, till it comes to the Consistence of Honey. Some of it I keep in this Form ; but I put the greater Part near to a Fire, or in a Sand-heat, till it becomes as thick as the Extract of Opium, taking great care, that it shall contract no Empyreuma. Out of five or six Pounds of the dried Heads, and Cuttings of the Stalks, I have had a Pound of the Extract, which is of much less Price than Opium.

The Dose of this Extract must be double to that of *Turky Opium*, to answer the same Intentions, which it does, without inclining Patients to those Ravings, or giving them the Nausea or Giddiness which common Opium does. This I attribute to the grosser viscous Parts being separated by subsiding, and with the Whites of the Eggs.

I prefer the Syrup of Poppies made with this Extract, to any made in the common Way ; for, besides that I can make it with much less Trouble than the common Syrup, and therefore prepare it fresh more frequently than Apothecaries will incline to make the common Syrup, so that mine has no Chance of turning sour, or of candying ; mine has other Advantages : For it does not ferment, as the other does, when moved, or in a warm Place ; and what principally makes me prefer it is, that I am certain to have it always of the same Strength ; whereas the Dose of the other must be very uncertain, since different Poppies have very different Proportions of the narcotic Juice.

In preparing the Syrup with this Extract, I mix such a Proportion, as that an Ounce of the Syrup shall contain two Grains of the Extract, equal to a Grain of common *Turky Opium*.

That Part of the Decoction, which I mentioned to be preserv'd in the Consistence of Honey, is nearly half so powerful as the Extract ; and is kept to save the Trouble and Time of dissolving Opium, or the Extract, when prescribed in Electuaries, Liniments, Plaisters, and the like, where the Opium requires to be intimately and equally mixed with the other Ingredients of the Composition. *Medical Essays.*

**PAPAVER CORNICULATUM.** A Name for several Sorts of GLAUCIUM.

**PAPAVER HERACLEUM.** A Name in *Boerhaave* for the *Cyanus* ; *Segetum* ; *flore caeruleo*.

**PAPAVER SPUMEUM.** A Name for the *Lychuis* ; *sylvestris* ; *quæ Been album vulgo*. See *BEHEN ALBUM*.

**PAPAYA.**

The Characters are ;

The Trunk is simple, or without Branches, and only shoots forth Pedicles for Leaves, which are jagged like those of the *Ricinus*. The Flower is male, naked, tubulated, and multifid, consisting of five long narrow Segments, which are expanded in the Form of a Star : This Flower is furnished with a Multitude of Stamina, and grows on a separate male Plant.

On another Plant, which is female, the End of the Pedicle opens into a small, dentated Calyx, on which grows the Resemblance of a pentapetalous Flower (if it ought not rather to be called a Pericarpium) destitute of Stamina. In the Bottom of this Flower, or Pericarpium, is seated the Ovary, furnished with a quinquesid open Tube, (the Segments evolved into foliaceous Fimbriæ) which becomes a carnos, striated Fruit, like that of the Melon, with a thick Rind, and a Pulp every-where abounding with striated Seeds, covered with an Involucrum.

*Boerhaave* mentions two Species of *Papaya* ; which are,

1. *Papaya* ; *fructu Melopeponis effigie*. *Plum.* 659. *Papayamarum*. *H. Mal.* 1. 23. *Platanus, secunda, seu Arbor, Platani folio, fructu Peponis magnitudine eduli*. *C. B. P.* 431. *Papaye Peruvianis*. *J. B.* 1. 147. *Mamara fœmina*, *Park.* *Theat.* 1649, *Raii Hist.* 2. 1370. **THE FEMALE PAPA-TREE.**

Some eat the Fruits raw ; but those of a more delicate Taste eat them prepared with Sugar : They strengthen the Stomach, and promote Concoction. *Raii H. P.*

2. *Papaya* ; *mat. Mamara* ; *mas*. *Park.* *Theat.* 1649, *Raii Hist.* 2. 1370. **THE MALE PAPA-TREE.** *Boerb. Ind. alt. Plant.* *Vol.* 2.

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**PAPAYAMARUM.** A Name for the *Papaya* ; *fructu Melopeponis effigie*.

**PAPILIO.** A Butterfly. Hence certain Flowers are call'd Papilionaceous ; because, in some measure, they resemble a Butterfly, with its Wings expanded. They always consist of these four Parts ; the *Vexillum*, or Standard, which is a large erect Segment, or Petal ; the *Alæ*, or two Wings, which compose the Sides ; and the *Carina*, or Keel, which is a concave Petal, or Segment, resembling the lower Part of a Boat ; this Keel is sometimes entire, and sometimes it consists of two Petals, or Segments, adhering pretty closely together : Of this Tribe are Peas, Beans, Kidney-beans, Vetches, and other leguminous Plants. *Miller's Dictionary*, *Vol.* 1.

**PAPILLA.** The Nipple of the Breast. See *MAMMA*. *Peyer* calls the Intestinal Glands by the Name of *PAPILLÆ*.

In the Skin there is an infinite Number of *Papillæ pyramidales*. They are the Ends of all the Nerves of the Skin, each of which are inclosed in two or three Covers of a pyramidal Figure, and these Covers are each above another. They may be easily seen and separated in the Skin of an Elephant, and in the Skin of the Feet of several other Animals. *Keill's Anatomy*.

**PAPILLARE OS.** The *Os Sphenoides*.

**PAPILLARES PROCESSUS** are the Extremities of the Olfactory Nerves, inserted into the mucous Membrane of the Nose.

**PAPIO, or PAVIO.** A large Species of Monkey, which is found in *Ethiopia* ; the Fat of which is said to be resolvent. *Lemery des Drogues*.

**PAPPA.** Pastebord. *Heister. Chirurg.*

**PAPPUS.** The Down of the Seeds of Plants. Hence Plants, whose Seeds, when ripe, are furnish'd with Down, are call'd *Pappose*, or *Pappescent*.

**PAPULA.** A Pimple, or ulcerous Tubercle.

**PAPYRUS.** *Offic. Papyrus Nilotica.* *A. B.* 2. 506. *Ger.* 37. *Emac.* 40. *Raii Hist.* 2. 1302. *Papyrus Nilotica Alpina.* *Berd Ægyptiis dicta* ; *Biblos Syriaca quorundam.* *Chab.* 195. *Papyrus Nilotica sive Ægyptiaca.* *C. B. P.* 19. *Theat.* 334. *Papyrus Antiquorum Nilotica.* *Park.* *Theat.* 1207. *Cyperus Niloticus vel Syriacus, maximus papyraceus.* *Hist. Oxon.* 3. 239. **THE PAPER-TREE.**

Of the *Papyrus*, in antient Times, was made Paper for the Use of Writing ; the Way of Preparation may be found in *Pliny, Lib.* 13. The *Papyrus*, also, before the Discovery of Fruits, was the Food of the *Egyptians* : On this they fed both raw, boil'd, and roasted, chewing it in their Mouths, and swallowing the Juice ; but spitting out the rest. Of the *Papyrus* they made Furniture for their Beds, Sails for their Shipping, Utensils for their Houses, and Shoes for their Priests ; and, of its Flowers, they made Garlands to crown their Gods ; and the Root served for the same Purposes as Wood. Their Surgeons, as we are informed, by *Prosper Alpinus*, now use the medullary Substance of the Leaves, to dilate the Mouths of Ulcers : The Trunk, burnt to Ashes, cures recent Ulcers, and prevents the Increase of Malignity in others, being sprinkled thereon ; and the distilled Water of the recent Trunk is very effectual against Cataracts, and Dimness of Sight. *Raii Hist. Plant.*

**PAR,** when applied to Days, imports even. See *ARTIOS*. When used in Prescriptions, it signifies, *a Pari*, or *Two*. Some Medicines are call'd *sine Pari*, without an Equal, on account of their supposed Virtues.

**PARA,** *παρά*, a Preposition of much Use and Significance in medicinal Terms, which are compounded, wherein it generally destroys or diminishes the Force of the simple Word, or implies some Deficiency, or Degeneracy from a State of Integrity, tho' still with a Reserve of some Measure of Goodness. Instances to this Purpose will appear in some following Articles.

**PARABOLANI.** A Name given to those who attended the Necessities of the Sick in the Hospitals established by the first Christian Emperors : The most natural Derivation of the Word, is, from *παράβολος*, *Parabolos*, signifying *bold, hard, venturous* ; because those poor People exposed their Lives and Health in attending the Sick, especially when they laboured under contagious Distempers.

*Godefridus* supposed the *Parabolani* to be some of the Clergy, or Ecclesiastics ; because there is mention made of that Office in the Code, under the Title *de Episcopis & Clericis* ; Perhaps some Ecclesiastics had taken upon them such an Employment ; but it is probable, they were not the only Persons ; It is possible, also, as some learned Men have thought, that those who entered into that Order, did it in consequence of some Vow, or from a Principle of Religion. But the Reason why the *Parabolani* are mentioned in the Code, under the Title above said, is, because the Election of these People depended upon the Bishops. The Number of *Parabolani* for the City of



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of *Alexandria* was regulated at six hundred, as may be infer'd from the Law in the Code, which, also, obliges them to be upon con inual Duty near the Sick, or in the Hospitals, whence they were never to depart, in order to be present at the Shews to which all the People were invited, or to go to the Palace to hear Causes tried, which was permitted to all Sorts.

Further, it appears by the proper Terms in which the Laws speak of the *Parabolani*, that the Word was in Use, and the Office established, before the Laws were made; so that the Emperors *Theodosius* and *Justinian* seem to have done no more than regulate the Manner of Elections, the Number, and the Office of those People, whose Name might be very antient, tho' the Regulation concerning that Office might be new.

Another thing worthy Observation is the gross Mistake of those who took the *Parabolani* to be Physicians, properly so called. What gave Occasion to this Error, is the Word *curare*, in the Laws where mention is made of the Business about which they are employ'd, which signifies as well *to cure*, as *to take care of*; but it is evident, that the Word in that Place can only be taken in the latter Sense, and that *Curare Debiliū agra Corpora*, which are the very Words of the Law, mean no more than to take care of the weak and infirm Bodies of the Diseased. To this may be added, that if the *Parabolani* had been Physicians of the Hospitals, their Elections would not have depended on the Bishops and Priests: The *Archiatři*, or principal Physicians, of the great Cities would have been the Persons concerned in chusing them; because these *Archiatři* were themselves obliged to visit the Poor. *Le Clerc, Histoire de la Medicine.*

**PARABOLICUS IGNIS.** The Heat of the Sun, collected by means of a concave Mirror. *Collect. Chym. Leidens. Prolegom. Cap. 2.*

**PARACELIUS.** The Name of a celebrated Physician and Chymist, an Abstract of whose Life and Doctrine we have given in the Preface.

**PARACENTESIS,** *παράκέντησις*, from *παράκέντιναι*, to make a Perforation. The Name of a surgical Operation, which consists in making a Perforation in the Abdomen, in a Dropsy, in order to evacuate the Water in an *Ascites*. See *HYDROPS*. The Perforation of the Breast, in order to let out extravasated Blood, Water, or Pus, is, also, called *Paracentesis Pectoris*.

**PARACMASTICOS,** *παράκμαστικός*. Declining. See *ACMASTICUS*.

**PARACME,** *παράκμη*, from *παρά*, and *ἀκμή*, which see. The Decline, used generally with respect to a Disease, or the Age of a Person.

**PARACOE,** *παράκοη*. Dulness of Hearing.

**PARACOLLETICOS,** *παράκολλητικός*. Agglutinating.

**PARACOPÉ,** *παράκοπη*, from *παράκωπιναι*, to be delirious. In *Hippocrates*, it imports a slight Delirium, or any Alienation of Mind.

**PARACRUSIS,** *παράκρσις*, from *παράκρῖναι*, to be a little delirious. This imports much the same as *Paracope*. Hence the Adjective, *παράκρσικός*, somewhat delirious.

**PARACYNANCHE.** A Species of Quinsy. See *ANGINA*.

**PARADISI GRANA.** See *CARDAMOMUM*.

**PARAGOGÉ,** *παράγωγῆ*, from *παράγω*, importing near to, and *ἄγω*, to bring. An Approximation or Reduction of the Bones.

**PARALAMPSIS,** *παράλαμψις*. A Cicatrix in the transparent Part of the *Cornea* of the Eye; from *παραλάμπω*, to shine a little.

**PARALIUS.** A Species of *Tithymalus*, mentioned by *Dioscorides*, *L. 4. C. 165*.

**PARALLAXIS,** *παράλλαξις*, from *παράλλω*, to change mutually. A mutual Change in the Situation of the Parts of a broken Bone, as when the two Fragments slip to the Sides of each other. See *FRACTURA*.

**PARALLELA.** A sort of Scurf, or Leprosy, affecting only the Palms of the Hands. It is a Symptom of the Venereal Disease. *Castellus from Forestus*.

**PARALOPHIA,** from *παρά*, near, and *λοφία*, the Eminence of the Back, is the lower and lateral Part of the Neck, according to *Keil*.

**PARALYSIS,** from *παράλυω*, to dissolve, or weaken. A Palsy.

Among the Diseases arising from the Want of a due Tone of the Viscera, and solid Parts, none are more considerable than such as affect the Head, and Parts situated therein: And, of these, the most important are, those Resolutions of the Nerves, commonly, by Physicians, called an Apoplexy, an Hemiplexy, and a Palsy; which three Disorders are so nearly connected, that we shall consider them in one joint View.

That all these Disorders affect Sensation and Motion, the primary Organs of which are, the Nerves, and the nervous and membranous Parts formed of them, is universally allowed.

# P A R

Now a Nerve is composed of tender Ducts, which convey an highly subtile Fluid, and are covered with a Membrane arising from the Meninges of the Brain. This Membrane, which surrounds them, is furnished with all kinds of Vessels, those of the lymphatic Kind not excepted; for which Reason it is capable of being inflamed, and rendered tumid, according to *Boerhaave*, in *Prax. Med.* and *Bartholomæus de Moor. Pathol. Cerebr. Cap. 10.*

What Cause communicates Sensation and Motion to the Body, by means of the Nerves, is much disputed; but, in my Opinion, it can be no other than an highly subtile and lymphatic Fluid, impregnated with a pure aereal, ethereal, and elastic Substance; which, being secreted within the small Ducts of the Brain, Cerebellum, and spinal Marrow, is convey'd not only into the small Tubes of the nervous Fibres; but, also, from these to the Nerves themselves; and, at last, to all the nervous Parts of the Body. This Fluid, when convey'd in a due Quantity, and with a proper Impetus, to the Nerves, and nervous Membranes, produces a certain Tension thereof; and, when this Tension is in its due State, Sensation and Motion are rightly performed thro' the whole Body; and the Nerves themselves are said to be possessed of their natural Tone and Elasticity. The Nerves are said to be robust, when their most minute constituent Particles cohere in such a manner, that they are capable of surmounting the natural, or perhaps, a somewhat greater Force of the Fluids; but if, in consequence of a too lax Cohesion, they are overcome by this Force, the nervous System is said to be weak.

A Nerve naturally tense is always full of its proper Fluid: Hence, when its most remote Extremity is but gently touch'd, according to the Laws of Hydraulics, it, with an incredible Celerity, conveys the Motion impressed upon it to the Brain, and Common Sentory, just as a small Tube full of Water, and covered at each End with a Piece of Bladder, has the Motion of its contained Fluid instantaneously convey'd to one End, upon pressing the other with the Finger. This is, properly, what we call Sensation. The Instruments of voluntary Motion are the Muscles, which are composed of nervous, tendinous, and fleshy Fibres, every-where interwoven with nervous Fibrils, and which perform their Offices in the following manner: The nervous, tendinous, and fleshy Fibres ought to be so stretched and filled with Lymph, as in some measure, to retard the Blood passing thro' the Muscle. And the Blood, thus stopping, inflates the Belly of the Muscle; and this becoming turgid, the Muscle is shortened, and its Extremity, together with the moveable Parts adhering to it, are down towards its Origin. Hence, when the Muscle is in Action, it is harder, and, as, it were, resists the Touch. Hence we infer, that in order to Motion, a greater Force, and more copious Influx, of the nervous Fluid are requisite, than to Sensation.

From what has been said, 'tis certain, that, by a Diminution of the Influx of the nervous Fluid into the Nerves, their Action, both as to Motion and Sensation, must be either totally abolish'd, or, at least, in a great measure, hinder'd. From this Cause arise the Disorders comprehended under the common Name of a Resolution of the Nerves; by which we understand an Inability of performing Motion and Sensation, arising from a diminished Influx of the nervous Fluid into the Nerves. Of this there are various Degrees, of which we shall consider two, as the most general; for either the voluntary Motions, the animal Actions, and the Use of Reason, are destroy'd, and the Patient drops down, as thunderstruck; or, the Causes and Reason remaining entire, the voluntary Motions, and animal Actions, or at least the Sense of Touch, become languid, or are totally destroy'd: In the former Case, the Patient is apoplectic; and, in the latter, paralytic.

Of Apoplexies, there are three Degrees, the highest, and universally mortal Degree of which is, when, together with the Senses, and all the animal Motions, all the vital Actions of the Body are at once destroy'd. See *APOPLEXIA*. Another Degree of this Disorder removes the Use of the Senses, voluntary Motions, and Reason; but does not destroy the vital Actions, nor always terminate in Death; but is generally converted into an Hemiplegy. The third and slightest Degree of this Disorder, which we call a spasmodic Apoplexy, discovers itself by the same Signs with the second; only it is removed in a shorter time, and does not so often degenerate into paralytic Disorders. And this slighter Degree of an Apoplexy we shall principally here consider.

This Species, therefore, of Apoplexy discovers itself by these Marks: It is, for a considerable time, preceded by a Weakness of the Senses, especially the Sight and Hearing; a Vertigo, a Littlefiness of the Joints, a Tremor, a Torpor of the animal Actions, and, generally, hypochondriac and hysteric Disorders. During this State, the Patient, being suddenly and unexpectedly deprived of his Reason, all his Senses, and animal Motions, drops down; his Feet, and inferior Limbs, are cold, his Skin dry and



and spasmodically constricted, his Face and Eyes red and turgid with Blood, and his Pulse strong and quick. Patients labouring under such a Paroxysm for some Hours either spontaneously vomit up a large Quantity of viscid Sordes, or have their whole Bodies covered with a Sweat; after which they return to themselves, and recover their Reason, Senses, and a Power of Motion. Many inform us, that under such a Paroxysm their Fauces have been constricted, a Power of Deglutition destroy'd, and their Breasts, as it were, confined with Cords: Such a Paroxysm, unless cured, returns frequently, and at last terminates in a fatal Hæmorrhage of the Brain.

On the contrary, an Hemiplegy is, when the Reason and vital Motions remaining, the Power of voluntary Motion, or with it, the Sense of Touch, is weakened. That such an Hemiplegy, or Palsy, is universal, or affects the whole Body, I deny, unless perhaps under an Apoplexy: Nor do I believe, that a Paraplegy can affect the whole Body, the Head remaining unaffected; at least, such a Disorder never occur'd to me in Practice; for every Palsy rather affects the Whole of one Side of the Body, and deprives it of Sensation, or is only confined to one particular Part. It is called an Hemiplegy, when the Half of the Head and Face is paralytic; and, in the other Case, it is called a Palsy of either Side; and, in the last Case, it is called a particular Palsy; which is either genuine, or spurious: The former has its Seat sometimes in the superior, sometimes in the middle, and sometimes in the inferior Parts of the Spinal Marrow; in some measure, deprives the Patient both of a Power of Sensation, and Motion; and arises from a Translocation of the Humours to the Nerves, which are compressed by them.

An Hemiplegy either succeeds an apoplectic Fit, or happens without it; and begins with a Refrigeration of the Side to be affected, and a preceding Vertigo; and gradually terminates in an Abolition of Sensation and Motion. The sound Side is often racked with spasmodic and convulsive Motions; the Mouth is frequently distorted, like that of a Dog; and as the Disorder proceeds, the Functions of the Mind, and especially the Memory, begin to be weakened. According to *Cælius Aurelianus*, in *Chron. Lib. 2. Cap. 1.* a particular Palsy is preceded by a Sensation of Weight in the Part about to suffer, a slow Motion accompanied with Stupor, Paleness, and Torpor; the Part affected is lax, flaccid, soft, and cold to the Touch, as it is affected with an Atrophy, or an œdematous Tumor. But we are by no means to confound that Inability of voluntary Motion, which accompanies a Palsy, with that which is sometimes joined with rheumatic and arthritic Disorders; for we often find this last Inability accompanied with Spasms and Convulsions, Symptoms quite foreign to paralytic Indispositions.

A particular Palsy affects various Parts; for sometimes the inferior Limbs, together with the Parts of the Abdomen, are deprived of Motion, and sometimes both of Motion and Sensation, whilst the Parts above the Diaphragm remain entire; then the Urine and Fæces are discharged involuntarily, after which an œdematous Tumor, a slow Fever, and, at last, Death, succeed; sometimes the Arms and Hands are afflicted with a Palsy; which, if spurious, or happening after a Colic, is called a Palsy arising from the Colic; but, when it arises from other Causes, it is call'd a Palsy of the Hands: There is, also, a Palsy of the Eye-lids, in which Case they cannot be separated, and there is an involuntary Discharge of the Tears: A Palsy of the Tongue is called APHONIA; which see. When the Pharynx is affected with a Palsy, all Deglutition is destroy'd; and this Species of Palsy is different from Spasms of the Pharynx. In dying Persons, the Oesophagus, Stomach and Intestines, become paralytic; and, in this Case, every thing swallowed, especially Liquors, descend with a kind of Noise and Rumbling: A Palsy of the Sphincter Ani discovers itself by a Falling down of the Intestinum Rectum, and an involuntary Discharge of the Fæces; that of the urinary Bladder, by an involuntary Evacuation of the Urine; that of the spermatic Vessels, by a perpetual Effusion of the Semen; and that of the Muscles of the Penis, by the want of a due Erection. *Cælius Aurelianus*, in *Chron. Lib. 2. Cap. 1.* informs us, that *Herophilus*, among the Antients, mentioned a Palsy of the Heart succeeded by sudden Death, without any evident Causes. And, among the Moderns, *Boerhaave*, in *Prax. Med. P. 5.* affirms, that the same may happen.

That the proximate and formal Cause of these Disorders consists in a more or less intercepted Influx of the nervous Fluid into the Nerves, is sufficiently obvious from what has been already said: Hence, also, appears the Reason, why some Palsies are legitimate, and others spurious; for the latter happens more readily than the former, because an Abolition of Sensation supposes an almost total Defect of the nervous Fluid, whereas an Inability of Motion is produced by a diminish'd Influx of this Fluid into the Nerves. 'Tis, therefore, necessary we should care-

fully investigate the several Causes capable of retarding such an Influx: Many Physicians have accused an Obstruction of the Nerves; but that this Opinion is false, is evident not only from the Smallness of the Nerves, but, also, from the Subtlety of the Fluid they contain, as *Bartholomæus de Moor*, in *Path. Cæc. Cap. 10.* has demonstrated at large. But the true Cause is rather a Solution of Continuity in the Nerves, as in Wounds; and violent Contusions, or a Compression of the Nerves, or their Origins, by any thing preternaturally acting upon them. But as all Palsies proceed from this common Cause, which, however, produces different Effects, we must inquire, to what this Diversity is owing.

That this, therefore, is to be accounted for from the Diversity of the Parts affected, is obvious, not only from Reason, but, also, from the anatomical Dissections of those who have died of these Diseases; for all who have made Observations of this Kind, such as *Willis*, *Bonetus*, and *Wepfer*, have universally observ'd, that, in Persons who died of an Apoplexy, the Cause of the Disease was lodged in the Brain, and its Ventricles, as, also, in the Cerebellum. *Brunnerus*, in *A. N. C. An. 1. Decad. 3. Obs. 153. & 154.* gives us two celebrated Histories of Apoplexies, which prov'd mortal, the one proceeding from a Dropsy of the Brain, and the other from Blood extravasated in it. On the contrary, the same Authors inform us, that in hemiplegic Patients, one Side of the Origin of the spinal Marrow is found overflowed with extravasated Serum, or compressed by Tumors. *Bonetus*, in *Sepulchr. Lib. 1. Sect. 15.* gives us Instances of the Extravasation of Serum in these Parts. And *Wepfer*, in *Auctario, Hist. 14.* and *Brunnerus*, in the Work already quoted, *Obs. 154.* inform us, that they saw encysted Tumors there. 'Tis needless, in Confirmation of this Doctrine, to mention Abscesses, Wounds, and Ulcers, which, by affecting the spinal Marrow, have produced an Hemiplegy; and, by penetrating into the Brain, an Apoplexy. Besides, if from Anatomy we find, that the Nerves destin'd for the vital Functions arise from the Cerebellum, those subservient to the Senses from the Base of the Brain, and those subservient to the voluntary Motions, and the Sense of Touch, principally from the spinal Marrow; we may readily infer, that, in all Apoplexies, the Cause compressing the Nerves is within the Brain; but in a Palsy, within the spinal Marrow; and particularly that, in an Hemiplegy, it is lodged about one Side of the Origin of the spinal Marrow.

But, among the Causes which produce a Compression of the Nerves in the Brain, and intercept the Influx of the highly subtle and moveable nervous Fluid into them, the most considerable is generally a Stagnation of the Blood in the Vessels of the Membranes of the Brain: And this Stagnation arises from a retarded Motion of the Blood through the Veins, and venous Sinuses, and its slow Return to the Heart; for, when the Blood is convey'd to the Head with a greater Impetus and Effort than that it can be received into the Veins, on account of the too great Distention and Expansion of the Vessels it becomes stagnant; and this principally happens in plethoric, hypochondriac, nephritic, and hysterical Patients, on account of the violent Spasms of the inferior Parts. Sometimes a gentle Species of Apoplexy, call'd *Spasmodic*, is produced by this Means, because in this, when the Spasms remit, the Mass of Blood is derived to the inferior Parts, and the free Circulation of the Humours through the Vessels is restored, the Force of the Disease generally forthwith remits. And this principally happens when a Vein is seasonably open'd, and the Body render'd soluble by a Clyster. Under such a Paroxysm, the Face is generally red, the Pulse quick and full, Motion and Sensation are abolished, and sometimes the whole Body is covered with a profuse Sweat.

But if this Stagnation continues long, and happens in Patients who abound with Serum, the thinner serous Juices are gradually secreted through the Pores of the preternaturally expanded Vessels, act upon the Nerves, and compress them. If this happens in the Base of the Brain, an Apoplexy is produced. The other Degree of an Apoplexy, produced by a Convoynance of Serum to either of the Crura of the Medulla Spinalis, generally leaves an Hemiplegy after it. This Disorder is from the same Cause generated without any previous Apoplexy, if the Serum separating from the stagnant Blood immediately falls upon the spinal Marrow. Such an Hemiplegy is called *Serous*, and principally seizes pituitous, sanguine, and phlegmatic Persons. Under it, the Pulse is languid and weak, the Face pale, and the Patient afflicted with a kind of Drowsiness, and Torpor of the Senses. Physicians, and, among the rest, *Cælius Aurelianus*, in *Chron. Lib. 2. Cap. 1.* have justly observed, that it is most familiar to old Persons, especially in the Autumn and Winter.

Among the more remote Causes, which, according to the Diversity of Constitutions, produce sometimes a serous, and sometimes a bloody Hemiplegy, the most considerable is too large a Quantity of Blood in active Persons, and such as have the



the Misfortune of a lax and spongy Habit of Body. This Redundance of Blood is the more ready to induce these Disorders, the more the Humours are put into a Commotion; for these, when in too violent an Ebullition, too much expand the tender Vessels of the Brain, and are sometimes absolutely extravasated. Hence 'tis easy to assign a Reason, why plethoric Patients are suddenly seized with these Disorders after an immoderate Use of Venery, liberal drinking of hot Wine, the Use of too hot Baths, violent Exercise in an hot Air, or exposing themselves to the Sun, as we are told by *Prosper Martianus* in his Comment; as, also, why these Disorders are brought on by violent Commotions of Mind, and Surfeits, especially if the Body is exposed to Cold: And I myself know Instances of Persons, who, after drinking too copiously of Wine or Ale, and exposing themselves to the Cold, have suddenly died of Apoplexies.

Besides, a Redundance of Blood contributes to bring on Palsies, when the Blood, by Spasms of the inferior Parts, produced by any Cause, is forced to the superior Parts, and especially the Head, and there stagnates. Hence we are to account for a spasmodic Apoplexy, and a sanguineous Hemiplegy, which happen to hypochondriac and hysteric Patients; a memorable Instance of which is found in *Fred. Hoffman. Consult. Med.* For this Reason 'tis, also, often observed in Practice, that the Menstrues, and hæmorrhoidal Discharge, when not duly carried on, contribute much to the Production of Palsies. Paralytic Disorders scarce ever fail to be excited by a sudden Stopping of any Evacuation of Blood, when actually flowing; so that they are very often brought on under the Menstrues, Hæmorrhoids, and Lochia, by violent Frights, excessive Cold, and the preposterous Use of Astringents, Repellents, and Opiates.

Thus the Blood by its Stagnation produces Palsies and Apoplexies, though, for the most part, of the sanguineous and transitory Kind; but, in Process of Time, serous and longer protracted Palsies and Apoplexies. But these are immediately produced by a serous Colluvies, too copiously congested in the Head, and acting on the Origins of the Nerves. Hence 'tis certain from Experience, that violent Palsies are produced by suddenly checking and suppressing serous Excretions, critical Sweats, insensible Transpiration, an immoderate Discharge of the Saliva, whether spontaneous, or excited by Mercurials, serous Discharges from the Ears, Eyes, and Nostrils, inveterate Ulcers, Fontanels, and a fetid Discharge from the Feet. For this Reason Infants, otherwise free from such Misfortunes, are subjected to paralytic Disorders: Thus an Instance of a Palsy produced in a Boy of two Years old, by a Suppression of Transpiration, is found in *Fred. Hoffman, Consult. Med. Sect. 1. Cap. 26.* For the same Reason, long Walking, or continuing in cold and moist Places, contributes to the Production of Palsies. Memorable Instances of this are found in *Forestus, Lib. 10. Obs. 83. & 84.* To this, also, belongs that memorable Case in *A. N. C. Decad. 3. An. 7. & 8. Obs. 203.* where we have an Account of a Man of Seventy, who, after a Deafness suddenly ceasing, was seized with an Apoplexy of the Right Side; which was only owing to a Translation of the Serum the first Cause of the Deafness, to the spinal Marrow of the Right-Side.

These Disorders will be the more terrible, if the Serum conveyed to the Head is acrid, scorbutic, and preposterously recal'd from the Joints and Skin by repellent and sulphureous Ointments: Hence there are various Instances of Achors, Crusta Lactæas, Tineas, Itches, and Purple Fevers, which, when repel'd, have been immediately succeeded by Palsies: The same holds true with respect to arthritic, gouty, and rheumatic Disorders, which, as is sufficiently known, are supported and cherished by an acrid Serum lodged about the membranous Parts of the Joints; for if this Serum is either by Opiates, or Astringents, used to alleviate the Pain, repelled, or if it recedes through a natural Imbecillity, it proves the Cause of the most obstinate Palsies. Thus an Instance of an Hemiplegy, arising from a rheumatic and arthritic Disorder, is found in *Fred. Hoffman. Consult. Med. Cas. 21.* To this Class evidently belongs the scorbutic Palsy, which is always spurious, and derives its Origin from an acrid scorbutic Serum stagnating about the Beginnings of Nerves, and compressing them. Such, also, is the Nature of Mercurials, that, when preposterously used in weak and impure Habits, in order to promote a Salivation, they induce Palsies; for Mercury, when mixed with the saline and excrementitious Particles of the Body, acquires a strongly stimulating Quality, by which it principally acts on the nerveo-fibrous Substance of the Glands, and excites a greater Afflux of the salival and lymphatic Humours. If the Discharge of these from the Mouth is by any Cause suddenly stopt, it easily happens, that, whilst the Afflux continues, these Juices are too copiously convey'd to the Origins of the spinal Marrow, and

the Nerves themselves, where by stagnating, and compressing them, they hinder the Influx of the nervous Fluid into them.

Spasms of the Membranes surrounding the Brain, and spinal Marrow, also, frequently lay a Foundation for hemiplegic and apoplectic Disorders: The Reason of which is no other than this, that the nervous Membranes, agitated by so violent Motions, are weaken'd, relaxed, and render'd incapable of hindering the Juices which enter them, however lymphatic and thin, from stagnating in the Vessels of the Membranes, and compressing the medullary Substance. Hence Experience informs us, that an Epilepsy is frequently succeeded by an Hemiplegy, which, if fatal, always terminates in an Apoplexy. And what should be the Cause, that a great Fit of Anger is sometimes succeeded by paralytic Affections, but that, by means of this violent Passion, there is a stronger Constriction of the Nerves and Vessels, producing that Stagnation of the Humours, which is so subject to intercept the Influx of the nervous Fluid?

All these Causes exert their pernicious Force with the greater Ease and Certainty, if they meet with a Flaccidness of the Brain, and a Debility of the nervous Frame: For, if the nervous Parts are too lax, they are the less able to resist an Inundation of Humours; but, on the contrary, are in a surprising manner disposed for their Stagnation and Extravasation. A Weakness of the Nerves may be known from antecedent Causes, such as Old-age, a sanguine Temperament, and from thence a lax, soft, and spongy Habit of Body; a sedentary and idle Life; too scanty an Use of Liquors, or too great an Indulgence of thick hopt Malt Liquor, or Wine; rich and plentiful Feeding, too much Sleep, as well as immoderate Wakefulness, much Study and Meditation, Indulgence in Venereal Pleasures, Sorrow and Grief of long Continuance, an Habitation in cold and moist Places, and a wintry Season. Bodies thus weaken'd, are by the slightest Cause, and what seems not worth Attention, disposed to Palsies and Apoplexies; as it happen'd, for Instance, to a certain Person, who, after drinking the *Selteran Waters*, tho' in a regular Manner, and with a Body well prepared, was seized with an apoplectic Fit, which left behind it a spurious Palsy.

Having premised these things relating to an Hemiplegy, we are now to treat of the particular Species of a Palsy. And here, those which deserve our chief Attention are, such as affect the lower Parts of the Body, or only the Legs and Feet, or the Abdomen, and all the Parts seated below the Diaphragm, the Parts above it remaining sound and unaffected. In the latter Case, the Cause is lodged in the spinal Marrow, about the first Vertebrae of the Loins, as is sufficiently demonstrated by the Dissections of the two Patients who died of this Disorder, and the Accounts of which we have in *A. N. C. Vol. 2. Obs. 51. & 120.* In one of these Patients the spinal Marrow, about the first Vertebrae of the Loins, was shatter'd and dissolv'd for more than half its Thickness. In the other, the spinal Marrow, thro' the whole inferior Part of the Spine, was so flaccid, and destitute of Juice, that there was a considerable Interstice between it and the Bone. This Disorder arises either, first, from external violent Causes, such as Fractures, Laxations, or Wounds of the Spine, at the same time affecting the Marrow; two Cases of which Kind are found in *A. N. C. Cent. 10. Obs. 8. & Dec. 1. An. 3. Obs. 66.* or, secondly, from internal Causes, and especially rheumatic, or convulsive Disorders of the Back; as is obvious from the memorable Case before quoted from *A. N. C. Vol. 2. Obs. 102.*

Sometimes the Cause is lodged within the Os Sacrum; in which Case the Disorder discovers itself by an Inability of Walking, and a Palsy of the Legs and Feet. This Species of the Disorder is sometimes hereditary, and depends upon a preternatural State of the Marrow contained within the Os Sacrum: Instances of this Kind arising from original Tumors within the Os Sacrum, which afterwards became exulcerated, and proved mortal, may be seen in *Hist. Morb. Wratisl. Ann. 1701.* The same happens after acute and intermitting Fevers, which terminate ill, if the Patient uses a bad Regimen, or indulges himself in Passion. And, in these Cases, the Cause of the Misfortune is a peccant Serum, by Translation convey'd to the Marrow of the Os Sacrum. The same Disorder is incident to Women after difficult Labours, Abortions, and Retentions of the Lochia; nor does it proceed from any other Cause, than Blood too copiously convey'd by the Spasms to the Os Sacrum, there becoming stagnant, and, unless Relief is seasonably afforded, suffering its serous Part to be secreted through the small Pores of the Vessels.

There is a remarkable Species of Palsy incident to the Arms, which, when it succeeds a Colic, unseasonably check'd by Anodynes and Opiates, is called a *Paresis arising from the Colic.* The Cause of it is a peccant and acrid Serum, by a Translation convey'd to the nervous Parts of the Arms, and especially those of the Carpus. Thus, in *A. N. C. Decad. 3. An. 7.*

*Append.*



*Append. ad Obs.* 308. we have a memorable Instance of such a Palsy succeeding a Colic stop'd by Opiates: And in the same Work, *An.* 4. *Obs.* 30. we have an Account of a Palsy succeeding a Colic, produced by drinking Wine adulcorated by Litharge. This Disorder is very familiar to those who work in Lead Mines, who after a violent Colic, accompany'd with an obstinate Costiveness, induced by the unfriendly Steams, fall into a Palsy of the Arms. This Disorder may, also, arise from other Causes, and sometimes proceeds from a scorbutic State of the Humours; an Instance of which is found in *A. N. C. Decad.* 1. *An.* 3. *Obs.* 334. Sometimes the Cause of this Disorder is lodged within the Vertebrae of the Neck, and superior Vertebrae of the Back, from which the Nerves are distributed to the Arms. A Case of this Kind, arising from a Blow of a Stone on the Neck, is described by *Forestus, Lib.* 10. *Obs.* 95. This Disorder, also, sometimes succeeds a Dropsy of the Breast, as *Carolus Piso*, in *Tr. de Morb. ex serosa Colluvie, Sect.* 3. *Cap.* 7. observes; in which Case the Cause is Lymph, stagnating within the small Vessels distributed through the Membrane of the Nerves, by reason of its obstructed Motion to the Thoracic Duct, and compressing the Nerves.

As for the Prognostic of paralytic Disorders, 'tis to be observed, that a spasmodic Apoplexy, and a sanguineous Hemiplegy, are easily cured; but, unless prevented by proper Measures, frequently return, and, at last, terminate in an Hæmorrhage of the Brain. The other Species of Palsies, and a serous Hemiplegy, do not suddenly prove mortal. But the Cure is more difficult and intricate, the more the internal or external Senses are injured; and these Disorders frequently afflict the Patients during the whole remaining Parts of their Lives. When Infants are seized with Palsies, we sometimes observe, that they are freed from them about the Years of Puberty; but such a lucky Change rarely or never happens in Adults. An Hemiplegy of the Left Side is more dangerous than one of the Right, by reason of the Aorta, and its more numerous Ramifications in the former than in the latter. If the Part affected is as yet painful, capable of Sensation, not too cold, nor extenuated, there are some Hopes of a Recovery, which is still the more to be expected, if there is a Sensation of Formication and Puncture in it. A Palsy of the Abdomen, and inferior Limbs, is generally mortal, and frequently accompanied with a Gangrene of the affected Parts. Paralytic Disorders, of all Kinds, are more easily cured in the Spring and Summer, than in the Autumn and Winter.

A Fever succeeding a Palsy is said to cure it; but this is rather to be understood of an artificial, than a natural, Fever; and rather holds good with respect to a serous, than a sanguineous Palsy; for, if there is a natural Fever, it must either be continual, which is always dangerous; or intermittent, which hardly removes the Disorder: But, by an artificial Fever, we mean an increased Motion of the Heart and Arteries artificially excited; by which means the Circulation of the Blood is render'd brisker, and the Juices stagnating about the Nerves, and their Origins, dissolved, and, as it were, resorb'd. Such an artificial Fever is brought on by Medicines somewhat hot and acrid, by nervous and volatile Substances, by violent Exercise, especially in the Heat of the Sun, and by Baths, especially those of *Laugstad*, and the *Caroline Springs*. But these must by no means be used in a sanguineous Palsy, already attended with a febrile Motion; but only in serous Palsies, where the Circulation of the Humours is languid.

In the Cure of paralytic and apoplectic Disorders, there are two Intentions to be principally pursued. The former is to remove the proximate, as well as the remote Causes, which contribute to intercept the Influx of the nervous Fluid into the Nerves. The second is to strengthen and corroborate the Part affected, and whole nervous System, so as to restore them to their former and natural Tone. 'Tis of great Importance to know, whether the Disorder is recent, or confirm'd; because, in these different States, different Methods of Cure are to be pursued.

If, when the Physician is call'd immediately after the Invasion of the Disorder, he finds the Pulse quick, and the Face red, there is no more present and efficacious Method of removing the Cause of the Disorder, which is a Stagnation of the Blood in the Head, than Venesection, which is forthwith to be used, either in the Arm or Neck, making a pretty large Incision, that the Blood may flow in a large Stream; or, if the Patient is plethoric, a Vein is first to be open'd in the Foot, left, a Vent being given to the Blood in the superior Parts, the Humours should by that means flow more copiously from the inferior Parts to them. Then the Venesection is to be repeated, either in the Arm, or Jugular Veins. It is sometimes requisite, that this Venesection should be twice, or oftener, repeated in a pretty large Quantity.

Then, in order to make a Revulsion of the stagnant Humours, somewhat acrid and stimulating Clysters, composed of the ner-

vous Herbs, Rue, Marjoram, Savory, Thyme, Mother of Thyme, Flowers of Lilies of the Valley, Oil of Chamomile, and, for the sake of the greater Stimulus, a proper Quantity of Sal Gemmae, Sal Ammoniac, or human Urine, are to be injected as often as the State of the Patient requires. Bathing the Feet, also, pretty deep in warm Water impregnated with the nervous Herbs, and the Flowers of Chamomile, the Tops of Yarrow, and Pot-ash, is of singular Service in these Disorders.

After Venesection, Spasms of the internal Parts, and, as it were, a febrile Ebullition of the Humours, sometimes remain; for alleviating which, we are to use fixed Diaphoretics, in Conjunction with precipitating and nitrous Substances, such as the Powders of diaphoretic Antimony, Crabs-eyes, Mother of Pearl, Cinnabar, Nitre, and Amber, exhibited in Water of Lilies of the Valley, or in the Water prepared of the Flowers of the Lime-tree; to which may be, also, added a proper Quantity of the Syrup of Citron-juice: For by such Medicines Transpiration is assisted; by which means we often find apoplectic and paralytic Paroxysms terminated. Nor in alleviating the Spasms of the internal Parts is there any Medicine more efficacious, than a proper Quantity of the anodyne mineral Liquor mixed with the bezoardic Liquor, or the volatile Spirit of Tartar; which Medicine ought to be given alternately with the above-mentioned Powders, and exhibited twice a Day. The Patient is, also, to abstain from all Malt Liquors, and only use Decoctions, pure Spring-water, or *Selteran Water*, mixed with a little Wine.

By a seasonable Exhibition of these Things, such Disorders, if recent, and as yet only supported by a Stagnation of the Blood, may be soon remov'd. But when there already seems to be a Secretion of the Serum, the sole Intention ought to be to discuss and derive it to other Parts. And in this Case, if the Patient is, as it were, lethargic, and snores, I with great Success use and exhibit an Emetic in a diluted Form, mixed with Analeptics; by which means the vital Motions are roused, and the Patient restored to the Exercise of his Senses and Reason. I generally use the following Formula:

Take of the vinous Water of Lilies of the Valley, of the Waters of Lime-tree-flowers, Primroses, Cinnamon, and distilled Vinegar, each two Ounces; of the succinated Spirit of Hartshorn, one Dram; of diaphoretic Antimony, Cinnabar, and Crabs-eyes, each half a Dram; of emetic Tartar, two Grains; and of the Syrup of Orange-bark, two Drams. Make into a Mixture; two Spoonfuls of which are to be taken every other Hour.

Then, in order to discuss the stagnant Serum, volatile urinous Substances, applied to the Nostrils, are of singular Service: Of this Class the most considerable is, Spirit of Sal Ammoniac prepared with Quick-lime, and mixed with Oil of Marjoram, or Rue. Sternutatories, especially of the nervous Kind, are, also, beneficial in such Cases, since they not only convey Motion to the Nerves, but, also, eliminate the serous Matter by the Nostrils. The following may serve as a Formula for this Purpose:

Take of Marjoram, and Flowers of Lilies of the Valley, each two Drams; of *Syrian Marum*, Flowers of Benjamin, and Cloves, each half a Dram; and of powdered Castor, ten Grains: Mix together for a Powder, to be used instead of Snuff.

In obstinate paralytic Disorders, in order to derive the stagnant Serum, nothing is more efficacious, than actual Cauteries applied between the second and third, or third and fourth Vertebrae of the Neck: And this Method was not only highly approved of by the Antients, but is, also, recommended by the Moderns, especially *Erndolius*, in *Warsavia physice illustrata*: But, in our more delicate Age, we generally substitute, in the room of this apparently cruel Method, Setons in the Nape of the Neck; or, if the Patient is disgusted at these, Vesicatories may be applied to the Nape of the Neck, or the Feet; which last are in delicate Patients to be prefer'd to the former, since, by Vesicatories applied to the Nape of the Neck, it has been found, that convulsive Motions of some Part before not affected have been excited.

If the Disorder is inveterate, besides the above-mentioned Remedies, proper Evacuants are to be called in, in order to make a Revulsion of the Humours from the Head. And these Evacuants must be balsamic Purgatives, the most considerable of which are the Pills prepared of the Extract of Coloquintida, Aloes, black Hellebore, Resin of Ladanum, Aloes-wood, Flowers of Benjamin, Salt of Amber, Myrrh, and *Peruvian Balsam*, each one Scruple; of Mercurius Dulcis, half a Dram; of Camphire, and volatile Salt of Hartshorn, each four Grains: Let



twenty-four Pills be form'd out of each Scruple, and let fourteen of these Pills be exhibited for a Dose. Among diaphoretic Medicines the most proper are, the succinated Spirit of Hartshorn, the anodyne mineral Liquor, with an Addition of a proper Quantity of the Essence of Castor, and Decoctions prepared of Guaiacum, Sassafras, Saunders, and *China* Root. Nor, in serous Disorders of the Head, can we enough commend the Virtue of diuretic Medicines, especially of the succinated Kind, the most considerable of which is Essence of Amber, with acrid Tincture of Antimony.

They who have for a long time laboured under paralytic Disorders, and are at the same time afflicted with a Weakness of the nervous System, ought to be treated with corroborative Medicines, and have a proper Regimen prescribed them. For this Purpose, one Part of the urinous Spirit of Sal Ammoniac, mixed with three Parts of Water, is a Medicine highly efficacious. A nervous Mixture may be, also, prepared of the Essences of red Gentian, and Cascarilla-bark, acrid Tincture of Antimony, the anodyne mineral Liquor, and the Oils of Mace or Cinnamon. And this Medicine may be exhibited in an Infusion of Baum prepared with Citron-peel. They who are afflicted with a languid Appetite, and a Weakness of the Stomach, receive great Benefit from the Elixir Viscerale, or an Electuary prepared of the *Peruvian* Bark, and that of Cascarilla. To old Persons nothing is more beneficial than a few Drops of the Balsam of Life, exhibited in the Morning in an Infusion of Baum.

Various external Medicines are recommended for recovering Sensation and Motion. In the Days of Antiquity, strong Frictions of the Part affected, with rough Cloths, were greatly extol'd; or, if Sensation was destroy'd, they used either to irritate the Skin with Nettles, or, previously using Friction with a Squill cut through the Middle, they applied Cupping-glasses without Scarification. It is, also, of singular Service to anoint the paralytic Parts with Spirit of Sal Ammoniac, and camphorated Spirit of Wine. Excellent Effects are produced by old *Rhenish* Wine digested in a gentle Heat with Rosemary, the Flowers of common Chamomile, Spike and Cloves, and with folded Linen Cloths applied to the Spina, Dorfi, the Os Sacrum, and the Joints. After Baths, or Frictions, it is beneficial to apply to these Parts nervous Liniments composed of human Fat, Galbanum, Turpentine, Balsam of Capivi, *Peruvian* Balsam, and the expressed Oils of Lavender, Juniper, Marjoram, Rue, Rosemary, Amber, and Nutmegs; for distill'd Oils alone are improperly used, because by drying and indurating the Nerves too much, they do more harm than good. The Head is to be covered with discutient and corroborating Caps; apoplectic Balsams are to be applied to the Temples; but these must not be of too agreeable a Flavour. The Head must be shav'd, and Powder of Amber sprinkled upon it. The hinder Part of the Head is, also, with great Advantage wash'd with spirituous Liquors prepared of the volatile Spirit of Hartshorn, Spirit of Worms, the *Aqua Ambaltina*, the Essence of *Peruvian* Balsam, the Essence of Castor, and the Oils of Nutmegs and Cloves.

In paralytic Disorders Baths are had recourse to as the last, and most important Medicine. Among these the most considerable are the hot Baths moderately used, among which the most celebrated are these of *Tocplitz*, *Emsen*, *Wiesbaden*, *Aix la Chapelle*; and in *Alisnia*, those of *Wolkenstein*, which are to be used when the Disorder is inveterate; but those of *Laugstad*, on account of their chalybeate astringent Principle, are only proper in a recent Palsy, or one already subdued, and which only discovers itself by a Weakness of Motion: But the Virtues of these are surpassed by Baths artificially prepared, the most efficacious of which is, that made with the Scoriae of Metals. Next to these are the Baths prepared of nervous Herbs, and Ants. For this Purpose, the most commodious Herbs are Mother of Thyme, Ironwort, Southern-wood, Origanum, Mint, Hyssop, Rosemary, Marjoram, and Chamomile-flowers; which, wrapt up in a Bag, and boiled in a small Lixivium, are to be immersed in tepid Water, and the Parts affected are to be fomented with them. Among Liniments, the most efficacious is that prepared of *Venice* Soap, and camphorated Spirit of Wine, with an Addition of the Essences of Galbanum and Bdellium.

In paralytic Disorders arising from a Redundance of Blood, Venesection, especially in the Beginning, is of great Service. The Antients, and among the rest, *Archigenes*, according to *Aetius*, *Celsus*, *Caelius Aurelianus*, and *Arctaeus*, affirm, that the Practice of letting of Blood immediately, was authorized by a Tract of faithful and constant Experience. But Venesection is injurious in an inveterate serous Palsy where the Strength is impaired, and the Appetite languid. For this Reason *Balloonius*, in *Lib. 6.* advises not to open a Vein in Palsies, where a cold Humour is in Motion; and confirms the Disadvantages of such a Practice by an Example. *Trallian* affirms, that, in the

Cure of a Palsy, Venesection is never to be used, unless when a manifest Redundance of Blood appears. A Vein is not to be open'd in the Feet, if they are cold, and spasmodically constricted. Men who have fallen into a Palsy from a retarded or suppressed hæmorrhoidal Discharge, after Venesection, may with great Advantage have Leeches applied to the Anus. And in the *A. N. C. Vol. 3. Append.* we have an Instance of an Hemiplegia speedily cur'd by applying Leeches behind the Ears, and Vesicatories to the Calves of the Legs.

Those who, by paralytic Disorders, have their Heads greatly weaken'd, and their internal Senses, especially, their Memories, injur'd, ought to abstain from an incautious internal Use both of the hot and cold mineral Waters; for these Waters pass slowly through the too much relaxed minute Vessels of the Head, and lay a Foundation for a greater Stagnation of the serous Humours. Nor have I found the Acidulae mixed with Wine, for ordinary Drink, salutary, because the Head is too much filled with the spirituous Vapour. But if the Patient is young, and the Disorder has arose from the hypochondriac Passion, the more temperate of the *Caroline* Springs, or even cold Mineral Waters warm'd, may be used: But when the Patient drinks these Waters, which ought to be used in a small Quantity, he ought to guard against Cold, Grief, and Fatigue of Mind; he is not to indulge himself in too much Sleep, but carefully to use Exercise, and nervous and balsamic Medicines. In general, 'tis to be observed, that the drinking of these Waters is far more proper when the Disorder is in its Decline, than when in its Vigour.

Artificial Baths prepared of Ants, and nervous Herbs, are the more efficacious, the lighter and finer the Water of which they consist, is. For this Reason, the best is thought Rain-water; or, if that cannot be had, Water is to be taken from a River after a large Fall of Rain. But all artificial Waters are surpassed by those of *Tocplitz*, which, in Lightness, surpasses Rain-water, and by their discutient, and diaphoretic Virtue, restore the Tone and Strength of the affected Parts. We, also, know from Experience, that suffering these Waters to drop on the Beginning of the spinal Marrow has frequently been of singular Service in dissolving the stagnant Humours.

For paralytic Disorders, especially of the inveterate Kind, cold and gently astringent Baths are deservedly recommended; as, also, Fomentations, prepared of the Roots of the greater Confound boil'd in Water. In this Case may be used chalybeate medicinal Springs, such as those of *Fregenswalden*, those of *Laugstad*, and those prepared of the Scoriae of Metals: But they must be applied only tepid; otherwise, by throwing the Mass of Blood and Humours into too great Commotions, they excite Anxieties, Cephalalgias, and Palpitations of the Heart. These Waters, by exciting an artificial Fever, augment the Disease, since, by constricting the exterior Parts of the Body, they render the Motion of the Blood and Humours greater to the internal Parts, and especially to the Heart, and large Vessels, which surround it. Hence the Systole of the Heart and Arteries is render'd quicker and stronger; and, consequently, the Circulation of the Humours through the minute Vessels, brisker. Hence it may easily happen, that Obstructions are removed, viscid Juices resolved, and Stagnations dissolved. But these Baths are not to be used by Persons turgid with Blood, such as labour under a Dyserasy of the Humours, or those afflicted with a Weakness of the solid Parts, such as old Persons.

Washing the Head, in paralytic Disorders, is of singular Service, especially in those accustomed to it; but they who are not accustomed to it, are to begin with a Lixivium which is not very acrid, and has nervous Herbs boil'd in it. Then let the Root of Asarabacca, and the Herb Rosemary, be inclosed in a Bag, and boil'd in the Lixivium. But these Medicines are not to be used, till the Patient is previously purged.

In a scorbutic Palsy, which is generally of a particular and spurious Nature, little Good is done by external Remedies. It is rather expedient by diluting Decoctions and Infusions, both hot and cold, used as ordinary Drink, to correct the Acrimony of the Humours, and subdue it by antiscorbutic Specifics, of which the most considerable are Earth-worms, either in Powder, or their Juice exhibited in Whey. Then the grosser Parts of the Sordes are to be eliminated by Stool, by laxative Preparations of Manna and Rhubarb. But the more subtle Parts of the Sordes, fluctuating in the Blood, are to be carried through the cutaneous Pores, by means of the diaphoretic Powders; for unless the whole Mass of Humours be purged, there can be no perfect Cure.

A Palsy of the Eye-lids is produced by a Translation or Stagnation of the Humours; and, unless soon removed, becomes incurable. I have observ'd, that the most effectual Method of removing this Disorder was to anoint the Eye-lids Morning and Evening with the Balsamum Vitæ warm, or with Oil of Cinnamon and Cloves, mixed with some pinguious Substance.



stance. Neither are we to neglect the Derivation and Evacuation of the peccant Serum, which may be obtained by Laxatives, Diuretics, and Vesicatories. Hence, in *A. N. C. Vol. 1. Obs. 140.* we have an Account of such a Palsy of the Eye-lids, happening after the Measles, cured by Vesicatories.

A Palsy arising from a Colic requires such Medicines, as by Transpiration eliminate the peccant Serum from the Blood. Externally, singular Service is done by the Skins of newly kill'd Animals applied hot to the Parts affected; which may be, also, rubbed with an Ounce of human Fat, mixed with a Dram of the Oil of Cloves. In this Disorder great Service is, also, sometimes done by the Application of blind Cupping-glasses, by which we have an Instance of such a Palsy cured in *A. N. C. Decad. 1. An. 3. Obs. 308.*

In paralytic Disorders a serene and temperate Air is of great Use: Hence *Cælius Aurelianus*, in *Lib. 2. Cap. 1. Chron.* orders the Patient to be laid in a light Place, so that the Chamber must be neither too hot, nor too cold, but temperate. The Aliment ought, also, to be light, and of easy Digestion, especially in the Beginning, when the Palsy is, for the most part, an acute Disorder, and the Force of the Stomach always languid. Nor are Wines, or Malt Liquors, of any Kind, to be used, especially in the Beginning: But, when the Disease is of a longer Standing a fuller Diet may be allowed.

For washing the paralytic Parts when dry, or affected with an Atrophy, we are by no means to use Spirit of Sal Ammoniac, which is rather to be used when the Parts are swell'd; in which Case it is, also, expedient to inclose the tumid Parts in a small Sack, filled with the following Species:

Take of Bran and Millet, each four Handfuls: Mix them in any Kettle, or proper Vessel; dry them over a gentle Fire; put them in the Bag, which is to be applied warm to the Part affected, when the Patient goes to Bed.

Violent Disorders of the Head, such as Lethargies, Apoplexies, and Hemiplegies, are very familiar to old Persons, and almost incurable. For the sake of Prevention, therefore, it is expedient, they should carefully abstain from all those things, which can weaken the nervous System, or render the Circulation of the Blood through the Head slower; and particularly from Cold, especially when the Body is disposed to sweat, from liberal drinking of spirituous Wine, from Grief, from Terror, and from the Intermission of usual Venesection. Old Persons ought, also, to abstain from the excessive Use of Tobacco, vaporous Preparations of Wormwood, thick Ale, and a moist and vapid Air. That in old Persons these Disorders are rarely cured, is, in my Opinion, owing to this, that their Blood abounds with a pituitous and glutinous Humour, which greatly contributes to hinder the Regress of the Blood through the small Veins, and venous Sinuses of the Brain, the former of which it obstructs by its Viscidity. But 'tis no easy Task to remove those Obstructions, which are deep-seated in the Vessels of the Brain.

Paralytic Patients, when abounding with Fat, and a Redundance of peccant Humours, are not easily restored to Health and Strength, unless they use a drying Regimen, which consists in abstaining from Broths, boiled Meat, and moist Substances; in using little Drink, especially of the thick Kind. They are only to use a small Quantity of the Decoction prepared of China Root, Shavings of yellow Saunders, Sassafras, and Raisins. They may, also, drink a moderate Quantity of generous Wine. They must eat no Flesh, but what is roasted; and may be allowed stoned Raisins. The Body, and its various Members, ought, also, to be carefully exercised. *Hoffman.*

A Palsy is such a lax State of the Muscles, as is sufficient to produce an Immobility not to be surmounted by any voluntary or vital Efforts. In this Disorder Sensation is sometimes absolutely destroy'd; at other times, a small Degree of it, accompanied with a Stupor, and, as it were, a slight punctory Pain, remains.

The most immediate Cause of this Disorder is always found to be an intercepted Influx of the nervous Fluid from the Brain, or of the arterial Blood into the paralytic Muscle.

This Disorder may therefore arise,

1. From every Cause capable of producing an Apoplexy;
2. From every Circumstance which renders the Nerves unfit for transmitting the animal Spirits; and,
3. From every Circumstance which hinders the Ingress of the arterial Blood into the Muscle. Hence we understand the respective Natures of a Paraplegy, an Hemiplegy, and a Palsy of a particular Part.

A Palsy may therefore be produced by an Apoplexy; a slight Parapoplexy; an Epilepsy; Convulsions; intense and long-protracted Pain; a Retention of any of the usual Evacuations, attended with a subsequent Vertigo; such as, a Suppression of the hæmorrhoidal and menstrual Discharges; the stopping of

Abcesses and Fistulas; the Retention of the Fæces, Urine, and Saliva. This Disorder is, also, produced by Translations of any morbid Matter, either in acute or chronic Diseases; by whatever injures the Nerves, either by Obstruction, Solution; Compression; Ligature, Distortion; Distraction, or Constriction: Hence a Palsy may be produc'd by gross Humours; Wounds, Erosions, Abcesses; Gangrenes, inflammatory Tumors in the Integuments of the nervous Medulla, in the Ganglions, and the Nerves themselves; by serous, purulent, ichorous, and scirrhus Tumors; by strong and tight Ligatures; by Fractures, Luxations, highly astringent Aliments, Medicines, and Poisons. Hence a Palsy may be generated by excessive Cold, intense Heat, a cold and moist State of the Air, the continual and excessive Use of warm Water, and the Steams of Antimony, Arsenic, recent Lime, Mercury, and other Poisons.

The immediate and remote Causes already enumerated, and concurring to the Generation of a Palsy, produce various Effects, according to the different Seats where they reside; according to their different Strength; according to the Diversity of the Part affected, as it is more or less, more mediately or more immediately, necessary to Life; for, from these Circumstances, the Disorder may be reckoned more or less mortal, curable or incurable.

A Palsy of the Heart, Lungs, Muscles subservient to Respiration, and the Throat, soon proves mortal: A Palsy of the Stomach, Intestines, and Bladder, arising from internal Causes, is highly dangerous: A Palsy of the Muscles of the Face is bad, and easily convertible into an Apoplexy: A Paraplegy is highly dangerous, prognosticates an Apoplexy, and, when the latter happens, the former proves mortal: An Hemiplegy is bad, partakes of the Nature of a Paraplegy, and, consequently proves mortal, when an Apoplexy happens: A Palsy, accompanied with Coldness, Insensibility, and Atrophy of the Part, is bad, and rarely curable: A Palsy, accompanied with violent Convulsions, and an intense Heat of the opposite Part, is bad; but, from the Symptoms opposite to these, 'tis known what Palsies are curable and less dangerous; as, also, what in this Disorder are the Causes of so sudden Deaths, which happen without any previous Sign, or almost any concomitant Symptom.

The Physician who applies what has been said to all the Muscles, whatever their Functions are, will understand the Causes, and know the Diagnostics and Prognostics, of an almost infinite Number of surprising, and, otherwise, unaccountable Diseases.

Nature cures a Palsy, by attenuating and dissipating the morbid Matter, by a bad Crisis deposited in the exterior Parts of the Brain, its Ventricles, about the Medulla oblongata, the Medulla spinalis, and the Egress of the Nerves from the Marrow, by resolving the impacted Matter by a violent supervening Fever, by moving the impacted Matter by a convulsive Tremor of the Part, and by eliminating this Matter by a copious and long-protracted Diarrhœa.

The Cure requires a Removal of those Causes which hinder the Functions of the Nerves and Arteries; and then a Restoration of the free Circulation of the Fluids.

The Causes hindering the Functions of the Nerves and Arteries are removed by various Methods, easily applicable to these Causes previously known.

If the internal Cause of a Palsy is a gross and stagnant Matter, such Medicines must be used, as are capable of producing those Circumstances, by which Nature cures this Disorder.

The Cure of a Palsy is to be attempted,

1. By attenuating and dissipating Medicines; such as aromatic, cephalic, nervous, and uterine Vegetables, the express'd Juices, Infusions, Decoctions, Spirits, or Preserves of which may be used: By fixt Salts obtained from these, by Calcination; by volatile Salts obtained from them, by Distillation or Putrefaction: By Oils obtained from these, by Expression, Coction, Infusion, and Distillation: By saponaceous Substances artificially prepar'd of a Combination of these: By the strong-scented Parts of Animals, and the Juices, Spirits, Oils, Salts and Tinctures of Insects: By fossile Salts, metallic Crystals, and such Compositions as principally consist of these Substances: By all these so judiciously mix'd, as that they shall mutually assist each other: By these means the Attenuation and Dissipation of the Matter, together with a febrile Heat, are obtain'd.

2. The Cure is to be pursued by strong Stimulants, and such Substances, as, by exciting a nervous, tremulous, and convulsive Motion, powerfully dissipate the impacted Matter: Of this Kind, the most considerable are strong Sternutatories and Emetics, especially when frequently repeated.

3. The Cure is to be attempted by hot, resolvent, aromatic, or fossil and acrid, metallic, mercurial and antimonial Purges; and consequently strong Hydragogues exhibited in large Doses, and for several Days successively repeated; by which



means a copious, and sometimes a long-protracted Diarrhœa may be excited.

4. By filling the Vessels of the Body with large Quantities of attenuating Liquors; and then exciting a greater Degree of Motion and Sweat, by means of the Steam or Vapour of kindled Spirits.

Hot, dry, external Frictions to a Redness of the Part, or Frictions with penetrating and stimulating animal or vegetable Spirits, or with nervous Oils, Liniments, Balsams, and Ointments, are beneficial in the Cure of this Disorder. Vapour-baths, and Immersions; acrid, aromatic and attractive Plasters; Cuppings; Scarifications; Vesicatories; Fustigations; and such Things as excite Pain, and a gentle Inflammation, as Nettles, are also serviceable in the Cure of a Palsy. Formulæ for this Purpose are these following.

Take of Mastich, Olibanum, and Amber, each half an Ounce; mix up into a Powder: Let half a Dram of this be sprinkled on live Coals, and when the Steam arising is receiv'd into an hot and dry Linen Cloth, let the Parts affected be strongly rubbed with it.

Take of the Spirit of Lavender, three Ounces; of Sal Ammoniac, two Drams; of the Tincture of Castor, four Drams; and of distil'd Lavender-water, six Ounces: Make into a Mixture, with which the Parts affected are to be rub'd.

Take of Cumin-plaster, Melilot-plaster, and pure Galbanum, each one Ounce; and of the Oil of Castor, half an Ounce: Make into a Plaster, to be applied upon Leather to the Part affected, after previous Friction.

Take of the Oils, by Infusion, of Wormwood, Dill, Chamomile, Nep, Rue, sweet Trefoil, Castor, Saffron, Orris, Earth-worms, Spikenard, and Earth, each one Dram; and of the Unguentum Agrippæ, the Unguentum Artanitæ, the Unguentum Martiatum, and the Unguentum Nervinum, each six Drams: Make up into a Liniment, to be applied to the Parts affected.

Acrid Plaisters are the Cumin-plaster, the Galbanum-plaster, the Melilot-plaster, and some others.

But we are above all things to take care, that all these Remedies may, if possible, be applied to the Seat of the Cause, when detected. Now the Part affected, the various Parts labouring under the same Disorder, a Knowledge of the Muscles and Nerves, of their Unions, Origins, and Distributions, and a Knowledge of the Functions depending on each of these, when compared with each other, clearly indicate and point out the latent Seat of the Disorder. *Boerhaave Aphorism.*

#### A PALSY IN THE IRIS.

The excessive Contraction and Dilatation of the Iris are occasioned by a sort of Palsy in its Muscles. The Dilatation proceeds from a Palsy of the circular Muscle; the Contraction is caused by a Palsy in the radial Muscle. The general Cause of these Palsies must be deduced from an Obstruction in the Nerves of the Choroides; which, by their Communication with the Nerves of these Muscles, produce their Motion. It happens, tho' seldom, that the Pupil is almost deprived of any Motion, either of Contraction or Dilatation while the Sight, tho' weak, still remains. In this Case, 'tis to be observ'd there is a Palsy in the nervous Filaments of the Iris; and that the Impression of the Object is convey'd to the Optic Nerve, by means of its close Union with the Choroides. I have always remarked, that the Palsy of the Choroides is attended with that of the Iris; and that the Palsy of the nervous Fibrils of the Iris does not damage the Choroides, tho' it weakens the Sight; which seems to be occasioned from the too great Dilatation or Contraction of the Pupil, which, by admitting either too many or too few Rays, renders the Sight imperfect.

#### A PALSY OF THE UPPER EYE-LID.

The upper Eye-lid becomes paralytic, when it is drawn down, and cannot be rais'd; or when it is rais'd, and cannot be brought down. In the first Case, the Elevator Muscle is affected; in the second, the Orbicular, or Deprimens. This Palsy is either perfect, or imperfect: It is said to be perfect, when the Eye-lid is almost destitute of Motion; and imperfect, when the Eye-lid has some Motion: This last Sort has several Degrees, which differ only in their having more or less Motion. When the Eye-lid remains always open, and without Motion, it is what the Antients called the Hare's Eye.

In the Palsy in general, both Sense and Motion are often lost; but, in this sort of Palsy, the Defect is in the Motion, whilst the Sense is not injured, or, at least, very seldom.

As Palsies are generally the Effects of an Apoplexy, this may be called a sort of slight or insensible Apoplexy. The Matter which causes it is thrown upon, obstructs, and compresses the Nerves, that supply the Fibres which move the Eye-lids. Purgatives, and all Remedies used for the Palsy in general, are proper in the present Case. The hot mineral Waters, the Success of which we daily experience, are equally beneficial in this Palsy. I have cured several of this Disease by Purges, Sudorifics, and, above all other Remedies, with Viper-broths.

The following Fumigation receiv'd in the Eye, and the neighbouring Parts, may be used. It is made of Rosemary, Thyme, Sage, and Wine boiled in a Coffee-pot: Let the Pot be covered with a Funnel; the broader Part of the Funnel must fit the Coffee-pot exactly: Let the Eye be placed before the Steam, which comes out of the End of the Funnel, as from a little Chimney; this must be done Night and Morning, for about a Quarter of an Hour. It is of the same Efficacy, as the pumping of hot mineral Waters on paralytic Parts: Care must be had to place the Eye at a due Distance, to support the Heat. The following Method must be used at the same time: Take a little pewter Pan, that will cover the Eye-lid, with a Pipe at its Bottom in the Form of an Handle, about four Fingers in Length. Let this Pipe be filled with Spirits of Wine distilled several times on Cloves, Lavender, Origanum, and Thyme: Afterwards lay the Pan on the Eye, and heat the Handle with your Hand. The Spirit thus rarefied bears on the Part, and there excites the animal Spirits in the moving Fibres. Care must be had to repeat this three times a Day. Several have been cured by these Means, especially when the Disease has not been inveterate.

The Eye-lids are likewise attacked with a quick, involuntary Motion, or Vibration, which I take to be a convulsive Motion of the Eye-lids. When this Accident happens seldom, it is of no Consequence, and is cured by rubbing the Palm of the Hand with *Hungary Water*, and applying it afterwards to the Part, for some Moments, three times a Day.

This convulsive Motion degenerates, sometimes, to a total Convulsion of the Eye-lid; then the Eye-lid remains shut about a Minute, and is afterwards rais'd; this happens often in the Day: During the Time of this Convulsion, the Fibres of the orbicular Muscle, which it affects, become stiff and tense. It may be compared to that Sort of Convulsion commonly called the Cramp, which seizes the Leg in the Night, and continues some time before the Position of the Leg can be altered. The Cause of this Convulsion must be deduced from the irregular Motion of the animal Spirits, which, flowing with too great Rapidity into the Fibres of the orbicular Muscle, obstruct, for a short time, the Action of the Musculus attollens.

This Convulsion may be instantaneously removed, either by rubbing the Hand round the Orbit and the Eye-lids, or making the Persons sneeze in the Time of the Fit.

Although either of these Methods give immediate Ease, yet they do not prevent the Return of the Convulsion; for which Reason proper Remedies, both internal and external, must be employed, as Bleeding, Purges, and Antiepileptics; such are, Piony-roots and Seed, a Decoction of the sudorific Roots and Woods, the Miselto of the Oak, Cinnabar of Antimony, the volatile Salts, and the like. Among all these Remedies, I have not found a more efficacious one, than the sublimed Flowers of Sal Ammoniac, mixed with the Caput Mortuum of Oil of Vitriol; they must be washed in common Water to carry off their Salts, and afterwards they must be dried; three Grains of them must be taken every Morning in the Confectio Hyacinthi. This Medicine commonly removes the Fits of the Convulsion before the eighth Day. As to external Remedies, let the upper Part of the Eye-lids be rubbed with an Ointment made of the Oil of Earth-worms, mixed with some Drops of Sal volatile oleosum, or compound Baum-water. The distilled Water of Elder-flowers is, likewise, very beneficial in the Convulsion and Palsy of the Eye-lid.

When the Eye-lid remains shut, and cannot be rais'd, there is an Operation which takes off Part of the Skin of that Eye-lid. When the Wound is healed, and the Skin is less extended, the Musculus attollens of that Eye-lid recovers its Motion, the Disease is cured, and the Person opens and shuts his Eye-lid at Pleasure. *St. Ives.*

PARAMERIA, παραμερία. The internal Parts of the Thighs.

PARAMESOS, παραμεσος. The Ring-finger; that which is next to the Little-finger.

PARA-



# P A R

**PARANOEA**, *παράνοια*, from *παρὰ νοῦν*, to be delirious. A Delirium, or Alienation of Mind.

**PARAPAR**. Clus. A sort of *Indian* Kidney-Bean. *Raii Hist. Plant.*

**PARAPECHYON**, *παραπήχυον*. The *Radius*, a Bone of the Arm.

**PARAPHIMOSIS**.

When the Prepuce is either naturally so short, or so swelled and contracted, that it cannot be drawn over the Glans, a Disorder is produced, called by the *Greeks* Paraphimosis. By this Stricture of the Prepuce, the Circulation of the Blood in the Glans is generally so much obstructed, that not only a Tumor of the Glans is occasioned, with violent Inflammation, and most acute Pains, but a Sphacelus is induced, and the Penis must be subjected to Incision. Those are most affected with this Disorder, who have naturally a Prepuce too narrow, and who exert themselves too vigorously in Coition, especially with Virgins, in whom the Vagina is strait. Young Husbands are sometimes egregiously mistaken, when, after the Embraces of a new Spouse, they find themselves affected by this Disorder; and therefore imagine her to have been unchaste and infected, while the real Cause was, the natural Stricture of Virginity. Sometimes those Youths, or Boys, are affected by this Disorder, who, having a very tight Prepuce, lasciviously draw it back, while the Penis is in a State of Flaccidity; by which means, an Erection being occasioned, the Glans becomes tumid, and the Prepuce cannot be returned. Thus have I seen a surprising Tumor of the Prepuce occasioned behind the Glans. Nor is it to be denied, that those are, sometimes, liable to a Paraphimosis, who have engaged in impure Embraces; for while the Penis, and interior Skin, are infected and corroded by the virulent Matter, the Prepuce may very readily be attacked with an Inflammation, Tumor, and those other Disorders before-mentioned.

The Cure of a Paraphimosis principally consists in reducing the Prepuce so, that the naked Glans may again be covered; for such a Reduction is immediately followed by a Remission of the Pain, and other Symptoms. Meanwhile, because a violent Inflammation seizes the tumid Part of the Penis, which renders the Return of the Prepuce difficult, and often impossible, it will not be improper to apply to the *Penis* digestive and emollient Fomentations or Cataplasms, or warm Wine, or camphorated Spirits of Wine; if, upon renewing the Application, no Erection appears, the Prepuce may be attempted to be drawn over the Glans; which being effected, all the other Symptoms immediately vanish. But because Wine, and camphorated Spirit of Wine, by their acrimonious Quality, and the emollient Cataplasms by their emollient Power, produce a Flux of the Blood towards the morbid Part, and, consequently, increase the Distention of the tumefied Penis, some prefer the Application of cold Water; for, when the Penis is immersed in the Water, and when it is plentifully sprinkled on, or applied by Compresses to the Abdomen or Scrotum, and if, at the same time, copious Bleeding be used, the Tumor and Erection generally soon subside. The Penis, thus becoming flaccid, should be lubricated with the Oil of Olives, or with Butter: Then let the Surgeon take the Penis between his fore and middle Fingers of both Hands, and with his Thumbs strongly repress the naked Glans, while the Prepuce is at the same time powerfully drawn forwards with his Fingers, till the naked Glans be again covered. During this Operation, the Patient is obliged to suffer excruciating Pain, and he makes miserable Outcries; which, however, the Surgeon should entirely disregard, or, as *Celsus* advises, dispatch his Business the sooner, upon which all Complaint ceases; for, after returning the Prepuce, little or nothing else is required for completing the Cure. If the Penis is affected with a slight Inflammation, where there is little Virulency, it generally suffices to bathe it in warm Water.

But if the tumefied Penis, by reason of the violent Inflammation, or long Continuance of the Disease, tends towards a Gangrene, it will be most proper, first, to bleed in the Arm, and afterwards, in the superior Part of the Penis, till it becomes flaccid; then the Prepuce may be returned as before directed, and the Bleeding stopt. *Petit* used a different Method in curing the Paraphimosis. He compressed the tumefied Glans with a narrow perforated Bandage, and, extending the Prepuce, he again brought it over the Glans. Sometimes the Prepuce is so distended with the serous Part of the Blood, that it appears like a Blister produced by a Burn, or a Vesicatory; and the contained Humour is conspicuous to the Eye, much obstructing the Reduction of the Prepuce over the Glans. In this Case, the distended Skin should be opened with a Knife, or a Lancet: Thus the Serum being discharged, the Wound must be cleansed with warm Wine, and the Skin may be again stretched over the Glans. In order to prevent the wounded Skin from growing to the Glans, the Patient, as often as he

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makes Water, should retain it a little between the Prepuce and the Glans; he should likewise frequently draw the Skin backward and forward, till all Danger of its Cohesion with the Glans disappear. The same Intention may, also, be answered, by often injecting warm Spirit of Wine between the interior Skin of the Prepuce, and the Glans; or by interposing soft Lint between the Glans and the Skin. If the Prepuce already adheres to the Glans, they should be forthwith separated by a Tooth-picker, a blunt Lancet, or a Knife armed with a Button; but particular Caution must be used to avoid wounding the Glans, which would occasion a large Hæmorrhage. The Prepuce and Glans being thus discharged, their reuniting must be prevented, by the Methods above directed. The Skin and Glans ought to be the more carefully kept asunder, while they are so; because, if once they are firmly united, they cannot be separated without the greatest Difficulty. After the Operation, the Penis should be bound up to the Belly, lest, by its hanging downward, the Afflux of the Blood being easier, an Inflammation and Tumor might be induced. I have sometimes seen the Prepuce, after it has been drawn back over the Glans, affected with a large hard Tumor, which could by no means be dissolved.

When all these Remedies prove ineffectual, *Petit* directs the following Method: Introduce a small crooked Knife between the Penis and Prepuce, with its Edge turned upwards towards the Prepuce, till the swelled, constricted Part of the Skin can be conveniently divided by it. If the Prepuce be constricted and tumefied in more Places, as in two, three, or four, like so many Rings, the Operation must be as often repeated, as the Nature of the Disorder requires. All the constricted Parts of the Prepuce being thus divided, the Penis must be fomented and wash'd with warm Wine; and, the Prepuce being drawn over the Glans, the Part must be carefully bound up, and healed as before. *Heister Chirurg.*

**PARAPHORA**, *παράφορα*, from *παράφρεω*, to deprave. A slight Delirium, or a Delirium in general.

**PARAPHRENTIS**. An Inflammation of the Diaphragm, or Parts adjacent.

If a Disease similar to the Pleurisy seizes that Part of the Pleura which surrounds the Diaphragm, or affects the Diaphragm itself, a terrible Species of Disorder, call'd *Paraphrenitis*, is produced.

This Disease is far more frequent than is commonly believ'd, since, when present, it either remains undiscover'd, is neglected, or treated as if it was another Disorder.

A *Paraphrenitis* is known from an highly acute and continual Fever; an inflammatory Pain of the Part affected, intolerable on account of the nervous Membranes. This Pain is greatly augmented during Inspiration, Coughing, Sneezing, Repletion of the Stomach, a Nausea, Vomiting, and a Compression of the Abdomen in discharging the Fæces, or the Urine. Hence the Disorder is accompanied with an erect, small, quick, and suffocating Respiration, performed only by the Action of the Thorax, the Abdomen remaining at Rest; with a perpetual Delirium; a Revulsion of the Hypochondria, inwards and upwards; the Rîsus Sardonius; Convulsions; Madness; and a Gangrene.

A *Paraphrenitis* terminates in the same manner with a Pleurisy; but, in consequence of the great and continual Motion of the Part affected, its Necessity to Life, and the Tension of the nervous Membranes, all the Symptoms are quicker, and more fatal. Hence arises a purulent Ascites.

Hence the Cure of a *Paraphrenitis* requires the same Distinctions and Cautions with that of a Pleurisy, and almost the same Remedies, such only excepted, as the Situation of the Part affected cannot admit of. Emollient Clysters, in consequence of their acting on the Parts next to that affected, are often beneficial.

But when the Diaphragm, previously inflam'd, comes to a Suppuration, and the Abscess, breaking, discharges its Pus into the Cavity of the Abdomen, the Pus is there collected, congested, and putrefied, produces a Tumor, a Corrosion of the Viscera, a violent Tabes, and, at last, Death.

This Species of *Paraphrenitis*, tho' known, is yet absolutely incurable. *Boerb. Aphorism.*

**PARAPHROSYNE**, *παράφροσύνη*, from *παράφρεω*, to be delirious. A Delirium, or Alienation of Mind.

**PARAPLEGIA**, *παράπληγία*, from *παρά*, importing somewhat injurious; and *πλήσσω*, to strike. A Paraplegy, or Palsy of all the Parts below the Neck, as it is now understood; but in *Hippocrates* it seems to import a Palsy of any particular Part, in consequence of an Apoplexy, or Epilepsy. See *APOPLEXIA*, and *PARALYSIS*.

**PARARMA**, *παράρμα*. The Lint of Cloth. *Galen, in Hippocrat. de Arte.*

**PARARTHREMA**, *παράρθρεμα*. A slight Luxation.

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**PARARRHYTHMOS**, *παράρρυθμος*. An Epithet for a Pulse which is not suitable to the Age or Nature of a Person.

**PARASCHIDES**, *παράσχιδες*, from *παράσχω*, to cleave. The Fragments, or Splinters, of fissur'd Bones. *Hippocrates, de Fract.*

**PARASEISMA**, *παράσεισμα*. A Concussion of the Body, esteem'd a Species of Exercise. *Hippocrates de Diata, L. 2.*

**PARASITICAL PLANTS** are such as are produced out of the Trunk or Branches of other Plants, from whence they receive their Nourishment, and will not grow upon the Ground, as the Mistletoe and others.

**PARASPHAGIS**, *παρασφαγίς*. The Part of the Neck contiguous to the Clavicles.

**PARASTATÆ**, *παρυστάται*. This, in *Hippocrates*, signifies the *Epididymis*. But *Herophilus*, and, after him, *Galen*, call'd these the *Varicose Parastatæ*, in order to distinguish them from the *Glandulose Parastatæ*, now call'd *PROSTATÆ*. The Word is deriv'd from *παρίστημι*, to be situated near.

**PARASTREMA**, *παράστρεμμα*, from *παράστρεφω*, to distort, or pervert. A Perversion, or convulsive Distortion, of the Mouth, or any Part of the Face. *Hippocrates, Proorrh. L. 2.*

**PARASYNANCHE**. A Species of Quinsy. See *ANGINA*.

**PARATHENAR.**

**PARATHENAR MAJOR.**

This is a pretty long Muscle forming Part of the outer Edge of the Sole of the Foot. It is commonly termed *Hypothenar*, but very improperly, according to the Signification of that Word.

It is fix'd backwards, by a fleshy Body, to the outer Part of the lower Side of the *Os Calcis*, from the small posterior external Tuberosity, all the Way to the anterior Tuberosity. There it joins the *Metatarsus*, and, at the Basis of the fifth Metatarsal Bone, separates from it again, and forms a Tendon, which is inserted in the Outside of the first Phalanx of the little Toe, near its Basis, and near the Insertion of the *Parathenar minor*.

**PARATHENAR MINOR.**

This is a fleshy Muscle fixed along the posterior Half of the outer and lower Side of the fifth Bone of the Metatarsus. It terminates under the Head of the Bone, in a Tendon which is inserted in the lower Part of the Basis, of the first Phalanx of the little Toe.

The tendinous Insertion of this Muscle is very closely united to the cartilaginous Ligament of this Part. The same thing is to be observed, concerning the other Muscles, which go to the lower Parts of the Basis of the first and second Phalanges of the Toes. In aged Persons, some Parts of these Ligaments are often turned to Bone, and thereby form these bony Portions, which are taken for distinct Sesamoide Bones.

The *Parathenar major* serves, particularly, to separate the little Toe from the rest; and the *Parathenar minor* bends the first Phalanx of that Toe. Both these Muscles seem to be too large and strong for the necessary Motions of so small a Part on so weak a Joint: But as the little Toe makes a Part of the outer Edge of the Sole of the Foot, which is very much exposed to external Violence when we walk bare-footed, and no Part of it so much exposed as the little Toe, very powerful Muscles were necessary to strengthen it on these Occasions.

Besides the two Uses already mention'd, the great and small *Parathenar* may have another, in which they may, also, be assisted by the *Thenar*; and that is, to bend the Sole of the Foot according to its Breadth, which Action is very requisite in walking a Tip-toe, in going up a Ladder, and in climbing; on which Account, the two *Parathenars* deserve the Name of the *Tiler's Muscles*, much better than the *Transversalis Pedis*. *Winflow.*

**PARDALIANCHES.** The *Aconitum Pardalianches* is, according to *Boerhaave*, a Name for the *Ranunculus*; *folio Cyclaminis*; *radice Asphodeli, major*.

**PARDUS.** Offic. *Jonf. de Quad. 81.* Aldrov. *de Quad. Digit. 64.* Charlt. 14. *Pantherus, Pardalis, Pardus, Leopardus.* Gesn. *de Quad. Digit. 824.* *Pardalis.* Raii Synop. A. 166. **THE LEOPARD.**

The Fat is esteem'd one of the best Cosmetics. *Dioscorides.*

**PARÉAS.** The Name of a Serpent said to be found in Syria, some of which are of the Colour of Brass; others, blackish. The Bite is not mortal, but only excites an Inflammation. *Castellus* from *Parasus*.

**PAREDRIA**, *παρεδρία*, from *παρά*, importing near; and *ἔδρα*, a Seat. An Association, Vehemence, or Assiduity (of a Disorder, or Disorders.) *Hippocrates Præcept.*

**PARÉGORICUS**, *παρηγορικὸς*, from *παρηγορέω*, to console, or mitigate. Mitigating, lenient; an Epithet for Medicines which relieve Pain.

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**PAREIRA BRAVA.** Offic. *Mont. Exot. 7.* Dale *Differt. Med. Cod. Med. 89.* Chomel. 261. *Caapeba, Pareira, Brava.* Lochn. Sched. p. 29. *Caapeba Brasiliensibus.* Worm. Mus. 158. *Caapeba.* Pif. 1. 94. *Caapeba sive Convolvulus Colubrinus.* Ejusd. 2. 312. *Caapeba Brasiliensibus, Lusitanis.* Erva de Nossa Senhora, aut Cipo de Cobras. Marcg. 25. Raiz, & Erva de Nossa Senhora. Worm. Mus. 157. *Convolvulus Brasili-anus flore octopetalo monococcus.* Raii Hist. 2. 1331. *Pareira, Ambutua, Butua overa Brutua.* Ind. Med. 89. *Butua overa Brutua, Pianta Indiana.* Zan. Hist. 59. *Butua sive Pareira Brava Lusitanica.* Geoff. Tract. 286. *Pareira Brava.* Chom. **WILD VINE.**

This Root is commonly about the Bigness of the little Finger; tho' sometimes larger. It is of a brown Colour, wrinkled both ways on the Surface; but its inner Substance is fibrous, like the *Thymelæa*. *Zanoni* says, that, when cut transversely, it represents the Sun, and its Rays; but this Conceit is without Foundation. It is of a sweetish Taste, with a disagreeable Mixture of Bitter, and without any Smell. Authors pretend that this Root comes from *Brasil*, for this Reason, because we get it from the *Portuguese*: But it is much more probable, that it is of *East-India* Growth; for a Surgeon sent it from *Surat* to *M. de Jussieu*, by the Name of *Boutua* Root; and wrote, that it grew along the Coast of *Malabar*.

This Root is much celebrated by the *Portuguese*, as an Alexipharmic, and an Antidote against all poisonous Plants. It is, undoubtedly, a very good Diuretic, and very proper in Nephritic Colics.

The Way of using it is, Boil about a Quarter of an Ounce, scraped or rasped, in two or three Pints of Water, till reduced to a Pint; of which the Patient is to drink a Glass every half Hour, in a warm Bath, his Body being before prepared by Bleeding and Clysters.

A small Quantity of the Syrup of the Five opening Roots may be added to the Decoction; and, by this Method alone, *Geoffroy* the elder cured the great *Abbé Bignon* of a Stone-colic, and made him void a very large Stone. When given in a large Dose, it heats considerably. It seems to act by dissolving the slimy Matter contained in the Kidneys and Bladder; and has been given with great Success, mixed with Balsam of Capivi, in Gonorrhœas, after sufficient Evacuations. The Decoction already mentioned has, also, done Wonders in hepatic Colics, arising from an Obstruction of the Orifice of the Gall-bladder, a Glass being drank every three Hours, to the Quantity of a Quart. The *Portuguese* use this Root powder'd, for Quinsys and Diseases of the Thorax. *Geoffroy.*

There is, also, another Sort of *Pareira Brava*; which *Dale* thus distinguishes:

*Pareira Brava alba.* Geoff. Tract. 287. *Pareira Species secunda.* Lochn. Sched. 32. **THE WHITE WILD VINE.**

This is said to come from *Brasil*. It is more woody than the former, composed of Fibres, of which some are longitudinal, the rest orbicular. The Bark of this Root is white, but the Substance within yellow, like Liquorice. *Geoffroy.*

**PARENCEPHALIS.** The *Cerebellum*.

**PARENCHYMA**, *παρέγχυμα*, from *παρέγχω*, to pour into. A Term introduc'd, as is said, by *Erasistratus*, importing all that Substance, which is contained in the Interstices betwixt the Blood-vessels of the Viscera, which he imagin'd to be extravasated and concreted Blood. The Moderns, having discover'd all the Viscera to be vascular and glandulous, have rejected this Term, together with the Doctrine.

**PARESIS**, *πάρεσις*, according to the Definition of *Aretæus, Chron. L. 1. C. 7.* is a Palsy of the Bladder, when the Urine is either suppress'd, or discharg'd involuntarily.

**PARIETALIA OSSA.** The Temporal Bones. See *CARPUS*.

**PARIETARIA.**

The Characters are;

The Flower is male, tetrapetaloid, stellated, furnished with four Stamina, and with Testiculi, having a small Apex in the Centre without an Ovary. The Flower is female, consisting of a foliaceous, trifoliated Calyx, in whose Centre is a conical Ovary, furnished with a simbrated Tube in another Place of the Plant. The Floscules and Ovaries are closely collected in thick Nodes to the Stalks.

*Boerhaave* mentions two Species of *Parietaria*; which are, 1. *Parietaria*; *Officinarium*, & *Dioscoridis.* C. B. P. 121. *Tourn. Inst. 509.* *Boerb. Ind. A. 2. 92.* *Helxine, Parietaria.* Offic. *Parietaria.* Ger. 261. Emac. 331. J. B. 1. 976. Raii Hist. 1. 206. Synop. 66. *Parietaria vulgaris.* Park. 436. **PELLITORY OF THE WALL.**

Pellitory of the Wall has several smooth, redish, succulent Stalks, half a Foot or a Foot high, with roundish, sharp-pointed Leaves, set on alternately upon long Foot-stalks, of a Deep-green above, and lighter underneath. The Flowers are small



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and staminous, redish before their Opening, white afterwards, growing among the Leaves all along the Stalks; it grows upon old Walls, flowering in May. The whole Herb is used.

It is cooling, opening, and cleansing, abounding in nitro-sulphureous Salt, and is accounted very good for the Stone, Gravel, Stoppage and Heat of Urine; and for these Purposes the Juice, or Decoction, is given in Draughts, or in Glysters; some commend the same for Coughs. *Miller's Bot. Off.*

By the chymical Analysis, Pellitory yields a great deal of Oil, a great deal of fix'd Salt, and Earth, and several Liquors, of which some are acrid, and the rest acid: As for the volatile Salt, one obtains none that is concrete from this Plant; but it yields an urinous Spirit.

*Dioscorides* affirms, that it lenifies and resolves, and is good to stop Tetters, and spreading Ulcers: They applied it, in his Time, to the Parts affected with the Gout; they gave the Juice to drink in an old Cough, made a Gargarism of it for the Diseases of the Throat; and injected it into the Ears to appease their Pain. *Cæsalpinus* says, it provokes Urine, and opens the Kidneys; *Tragus* very much commends the Decoction, to remove Obstructions of the lower Belly. Take, according to him, Pellitory of the Wall and Water-cress-leaves bruised; add a sufficient Quantity of Wine; mix, and put them in a Fry-pan; apply them in Form of a Cataplasim, moderately hot, to the lower Belly, for Suppression of Urine. *Dodonæus* only makes a Cataplasim of the Leaves, and Oil of sweet Almonds. *Hildanus* uses Oil of Scorpions, instead of Oil of sweet Almonds. *Tragus* makes another Cataplasim for Contusions, frying it with Bean-meal, Mallows, Wheat-bran, Oil, and Wine. *Camera-rius* prescribes it bruised with Vinegar, and applied hot to the Testes, in case of Ruptures. *Aurelius Victor* says, that *Constantine* gave the Name of this Plant to the Emperor *Trajan*; because his Statues and Inscriptions were on all the Walls of Rome, like Pellitory. It is now used in all deterfiv and lenitive Decoctions, and Semicupiums. The Syrup of Pellitory gives great Relief to hydropic Persons. *Martyn's Tournesfort.*

*Parietaria* absterges, and is somewhat astringent and cooling; it is seldom used internally; yet some commend it for the Cough: Externally, it is of Service in Tumors, Erysipelas, and Ambu-ssions; and, being slightly bruised and apply'd, it is said to be very effectual for the Cure of recent Wounds. The Powder of the dry'd Herb, taken in Honey, or drank in Beer, or Posset-drink, is an excellent and approved Remedy for an inveterate Cough, and Consumption of the Lungs; and was usually prescribed by the Antients for the Cough and Asthma. The Decoction in Wine, or Hydromel, is conducive to the same Purposes; but the Powder is more effectual. This Plant affords a nitro-sulphureous Salt, as well as Borage and Bugloss. That it abounds with nitrous Salt, is evident from its deterfory Virtue.

It is called *Parietaria*, and *Muralis*, from *Paries*, or *Murus*, a Wall, because it grows on Walls: *Helxine*, from *ἑλκω*, *ἑλξω* (*helco*, *helxo*) to draw or attract; because its rough Leaves and Seeds draw and tenaciously adhere to Cloaths: *Perdium*, from *Perdix*, a Partridge, because Partridges usually feed on it: *Viridaria* and *Urceolaris*, because, by its *Mucosness*, it is of Service for scouring and cleansing Pots and Glasses. *Raii H. P.*

2. *Parietaria*; minor; *Ocymi*. *C. B. P.* 1211. *Boerb. Ind. alt. Plant. Vol. 2.*

PARLI. H. M. The Name of a tall Tree, which grows in Malabar.

The Root and Leaves are said to correct a melancholy Disposition of the Blood, and to temperate acid and salt Humours. Of the Leaves, together with the Leaves of the *Garretti*, boiled in the lacteous Juice of the Coco-nut, a Potion is prepared, which mitigates the Pains of the Piles, either internal, or external.

PARIS HERBA. See HERBA PARIS.

PARISTHIA, *παρίσθια*. The Tonsils; or Disorders of the Tonsils. See TONSILLÆ.

PARITI, or TALI-PARITI. A Species of *Alcea*, which grows in Malabar, the Flowers of which, bruised in Milk, are put into the Ears, as a Remedy for Pains of the Head.

PARKINSONIA.

The Characters are;

It hath a polypetalous, anomalous Flower, consisting of five dissimilar Leaves, from whose Cup arises the Pointal, which afterwards becomes a rough-jointed Point; each Knot or Joint containing one Kidney-shaped Seed.

*Miller* mentions but one Species of this Plant; which is,

*Parkinsonia aculeata, foliis minutis, uni costæ adnexis.* *Plum.* Nov. Gen.

This Plant was discovered by Father *Plumier*, in America, who gave it this Name, in Honour to the Name of Mr. *John Parkinson*, who published an universal History of Plants, in English, in the Year 1640.

It is very common in the Spanish West-Indies; but, of late Years, it has been introduc'd into the English Settlements in

# P A R

America, for the Beauty and Sweetness of its Flowers. This, in the Countries where it grows, naturally rises to be a Tree of twenty Feet high, or more; and bears long slender Branches of yellow Flowers, which hang down after the same manner as the *Laburnum*. *Miller's Dictionary.*

PARNASSIA.

The Characters are;

The Leaves are roundish, and disposed in a Circle; the Calyx is pentaphylloidal; the Flower rosaceous, one on a Stalk, consisting of greater and smaller fimbriated Petals. The Ovary becomes a small conoidal Fruit, opening into three or four Keel-shaped Cells, full of minute Seeds.

*Boerhaave* mentions but one Sort of *Parnassia*; which is the *Parnassia*; palustris & vulgaris. *Tourn. Inst.* 246. *Boerb. Ind. A.* 243. *Raii Synop.* 3. 355. *Hepatica alba*. *Offic. Gramen Parnassii*. *Ger. Emac.* 840. *Raii Hist.* 2. 1049. *Gramen Parnassii vulgare*. *Park. Theat.* 429. *Gramen Parnassii, flore albo simpliciter*. *C. B. P.* 309. *Gramen Parnassii Dodonæo, quibusdam Hepaticus flos*. *J. B.* 737. *Cistus humilis palustris, Hederæ folio, persiliata nostras*. *Pluk. Almag.* 108. *Pyrola rotundifolia palustris nostras flore unico ampliore*. *Hist. Oxon.* 3. 505. GRASS OF PARNASSUS.

It grows in putrid and marshy Places, and flowers in August: The Parts used in Medicine are the Root, Herb, and Seed.

The Juice of the Leaves, and Decoction of the Root, are most approv'd Medicines for the Eyes. The Seed is a powerful Provocative of Urine, and stops a Looseness and Vomiting. *Dioscorides*. It strengthens the Liver, and frees it from Obstructions. *Chab.* It is vulnerary and astringent, and is said to be effectual in stopping Hæmorrhages. *Hist. Plant. adscript. Boerhaav.*

PAROCHETEUSIS, *παροχέτευσις*, from *παρά*, and *ὀχεύω*, of *ὀχέω*, a Canal, or Duct, Derivation, is used by *Hippocrates* to signify a Derivation of the Humours from one Part, in order to evacuate them by another not far distant. The Laws of Derivation, in *Hippocrates, Lib. de Humoribus*, are thus express'd: *Παροχέτευσις ἐς κεφαλὴν, ἐς τὰ πλάγια, ἢ μάλιστα ῥέπει*. "Derivation is made to the Head, to the Sides, and where "there is the greatest Tendency." Or, otherwise, 6 *Epid. Sect. 2. Aph. 5.* *παροχέτευεν ὑπερῖσιν ἀνίσταν αὐτικὰ, ἀνίστανοντα ὑπερῖσιν*. "Derivation is to be used, when you have "done something immediately towards a Revulsion, and Re- "nitences are to be subdued (or mollified)." *Galen* very well explains *Derivation*, in his Comment on these Words: "*Hippocrates*, says he, uses the Word *Parocheteusis*, Derivation, "when an Humour requires to be evacuated, and does not take "its Course the Way which it ought to do, nor yet very re- "mote from the proper Passage, nor to the most contrary "Place; for Instance, when the Urine tends to Evacuation "through the diseased Kidneys and Bladder, it may be best, in "that Case, to make a Derivation of it by the Intestines, in "the same Manner as when the Course of the Humours is "directed towards the Intestines, if the Intestines are vitiated, "a Derivation is to be made by the urinary Passages. Thus, "in Women, *Derivation* is to be made, sometimes, to the "Uterus, or the contrary; sometimes a Derivation is to be "made of an uterine Flux towards the urinary Passage, or "the Intestines." And, *Lib. 1. ad Glau.* he says, "While "the Humours are in a flowing State, *Revulsion, ἀνίστασις*, "as *Hippocrates* calls it, is the proper Remedy; but, when "they are settled and fixed on some particular Part, *Deri- "vation* is to be attempted."

PARODONTIDES, from *παρά*, frequently signifying, in Composition, the same as the Latin, *præter*, by, nigh to, by the Side of; and *ὀδὸς*, Tooth: The same as *PARULIDES*; which see.

PARONYCHIA, in Surgery, is a Whitloe.

By a *Paronychia*, or Whitloe, is meant an intense, corroding Pain which affects the Phalanges, and especially the Ends of the Fingers, and which is attended with a violent Pulsation, and preternatural Heat. The Fingers are, for the most part, tumefied; and sometimes there is no Tumor, when the Disorder lies deep, or about the Bone. Sometimes these Pains extend to the Cubitus, or Shoulder; because of the Connection between the Fingers and those Parts by the Flexor Muscles: Sometimes the Pain is gentle or moderate; and sometimes the Pain is so violent and intolerable, that the Patient is obliged to pass both Day and Night without any Sleep, in a miserable Condition: Nor is it altogether unusual, to see those of more delicate Constitutions so tormented with the Pain of a Whitloe, that a Fever, Painings, Convulsions, great Heat and Deliriums, with a violent Inflammation of the Arm, an Abscess, or Spacelus, are induced; and, unless timely Assistance intervene, Life itself is endangered.

As, therefore, the Paronychia is more mild, or more violent, according to the different Parts affected by it, several Species of it have been constituted by Surgeons. *Garengot* reckons



four, and *Gourey* five; but I can see no Reason for making more than three. 1. When the Disorder arises in the Skin or Fat, in the back, or fore Part of the Finger, or even under or near the Nail; in this Case, the Pain may be severe, but the Symptoms are usually not malignant. 2. When the Periosteum is attacked, inflamed, or corroded; and then the Patient is tormented with most violent Pains, which, however, are more or less intense, as that tender Membrane is more or less affected. 3. The most malignant Species is, when the nervous Coats of the Flexor Tendons of the Fingers, or the Nerves near them, are seiz'd with this Disease; for then it is attended with the most excruciating Pains, the most malignant Symptoms, and the Patient is every way disordered.

The immediate Cause of a Paronychia appears to me to be, an Inpissation of stagnated Blood, whence proceeds an Inflammation of the adjacent Parts; and this is evident from the Heat and Pulsation of the Part affected. This Inpissation may be produced, partly by internal Causes, as a Crudity and Acrimony of the Blood; and, partly, by various external Causes, as the Prick of a Pin, a Thorn, or a Splinter, or by a Contusion or Bruise, and other like Accidents: So that a Paronychia is more or less dangerous and troublesome, in proportion to the Degree of the Wound or Inflammation, or the Sensibility of the morbid Part. Some Physicians have asserted, that in Fingers thus affected Worms have been observed, to which they ascribed the Cause of the Disorder; and, perhaps, upon this Account, the *Germans* named it the Worms in the Fingers.

In the Beginning of the first Species, the affected Part of the Finger swells, with a slight Hardness, but little or no Pain. Afterwards Redness, with Inflammation and Pain, appears, which are gradually succeeded by the Symptoms already mention'd: But, tho' the Tumor wonderfully increases, the Pain and other Mischiefs seldom become intolerable in this Species, or extend themselves beyond the affected Finger, as in the other Kinds. In this Sort, the peccant Matter is so far from being lodged deep, that it is often perceptible to the Eye: But the nearer the Inflammation reaches to the Periosteum, or Tendons of the Fingers, the more intense are the Pains, so as, sometimes, to affect the whole Arm; and in lax, delicate Constitutions, induce almost continual Watchings.

The second Species of Paronychia may be distinguish'd from the first, by the intense Pain, either in the End of the Finger, or over its whole Extent, accompanied with great Heat, a Fever, Watchings, Convulsions, and sometimes with a Delirium. The Tumor and Inflammation scarcely appear outwardly, nor does the Pain reach the Wrist.

The third Sort of Paronychia may be known by the following Symptoms. There is either no Tumor about the End of the Finger, or it is very small; especially if the Inflammation affects the interior Coat or Vagina of the Tendon, more than the exterior. Here the Pain is so intense and intolerable, that the Patient is in extreme Agonies: Nor is the Finger only affected, but the whole Hand and Carpus; especially that Part of the Hand near the Carpus, under the transverse Ligament of the Hand. The Pain even extends over the Arm, to the internal Part of the Elbow, where the Flexor Muscles of the Fingers have their Origin; and is sometimes propagated to the Top of the *Humerus*, inducing almost continual Watchings, with a Fever and Convulsions.

If the corrupted Matter is lodged in the Coat of the Tendon, its hard and compact Substance makes little or no Swelling upon the Fingers, excepting towards the Joints, where it is but moderate. The Hand is more swelled than the Fingers, but its Pain is milder; and sometimes the Arm has become so surprisingly tumid, that *Garengot* says, he has seen it as large as the Thigh.

The Paronychia terminates variously, according to its different Degrees and Symptoms. In the first Species, there is generally little Danger: If the Parts about the Nail be affected, the Nail generally separates from the Finger, occasioning much Pain to the Patient; tho' sometimes only that Half of the Nail comes away, which is nearest to the Whitloe. But if the morbid Matter is lodged under the Nail, or extends itself towards a Tendon, the Patient is tormented with very intense Pains. In the Paronychia of the second Kind, the Pains and other Mischiefs are so violent, that, as some affirm, the Life of the Patient is sometimes endangered; tho' I have seldom seen the Disorder increased to such a Degree. Sometimes, after the Inflammation and Suppuration, I have seen the Bone attacked with a Caries; and, if this happens in the last Joint, it will be more likely to come away entire, as being very small, than that the carious Part should separate from the sound. But the third Species of Whitloe is the most dangerous, and the most malignant. If, in this Case, an Abscess or Gangrene happens, the Pains are so excruciating, and attended with a Fever, Tumor, and Inflammation of the Arm, and other pernicious Concomitants, that, unless timely Assistance be administer'd, a mis-

erable End may be put to the Patient's Life. If an Abscess should be formed in the Arm, near the *Musculus Quadratus* of the Radius, under the annular Ligament, *Garengot* is of Opinion, that, without Incision, the Case ought to be deem'd incurable; and, even then, the Patient may be in danger of losing the Use of the morbid Finger, notwithstanding the most prudent Treatment; and then the inevitable Consequences of the Disorder are often, by the Ignorant or Malevolent, imputed to the Negligence or Unskilfulness of the Surgeon.

With regard to the Cure of a Paronychia, *Garengot*, without mentioning any other Remedy, directly proposes Incision. But I think it more prudent, as in other Diseases, according to the Advice of *Hippocrates*, (*SecT. 8. Aphor. 6.*) first to try the Effects of Medicine, before I assume the Knife, so much dreaded by the Patient. In this Practice, I am confirmed by Experience, not only in other Diseases of this Kind, but even in the Paronychia itself, when I have exhibited Medicines proper for digesting the inspissated, stagnant Blood, and for mitigating the Inflammation. For this Purpose, let the Patient often hold his Finger, for some Hours at a time, in the best Spirit of Wine, or camphorated Spirit, mixed with a little *Venice Treacle*. A Decoction of Garlick in Milk, or of an Handful of Sabine and Germander, may answer the same Intention; in which warm Liquor the Finger should be constantly immersed, or fomented very frequently with it. The Academy of Sciences at *Paris*, in their Memoirs for 1707. have advised to dip the morbid Finger often in boiling Water, for a small Space of Time. Others prescribe a Plaister of *Asa-foetida*, thick spread on Linen, to be apply'd to the Part. Others recommend, from Experience, the thin, white Membrane between the Shell and Substance of a boiled Egg, to be apply'd like a Plaister. *Riverius* says, that a Whitloe may be easily cured, by a frequent Intrusion of the diseased Finger into the Ear of a Cat. If, during the Use of these Remedies, the Fever and Inflammation are violent, proper internal Medicines, and Bleeding, ought not to be neglected. If by any of these Means the Patient finds Relief, he should persist in the Use of them till the Finger be without Pain, and perfectly recovered: But if these Remedies operate but slowly, or have no Effect, so that a Suppuration seems to be advancing, Recourse must be had to Incision, as the safest Remedy. Meanwhile, as the Patients are apprehensive of Incision, because of the great Pain it produces, it will not be improper, in the first or milder Species of the Paronychia, to apply a Plaister of *Diachylon cum Gummis*, or, the like, for ripening the Suppuration, till the Situation of the morbid Matter becomes more conspicuous, and the Operation may be performed with less Pain. But in the two other severer Species of this Disorder, the least Delay is dangerous; because the Periosteum, and small Bones, are soon corroded by the malignant Matter, which may induce more intense Pains, larger Abscesses, a Caries, or a Gangrene of the whole Arm, and, probably, the Death of the Patient.

For the easier Cure of a Paronychia, its Species should first be considered: If it be of the mild, or first Kind, and has not penetrated deep, the Cure may, without Difficulty, be obtained. As soon as the purulent Matter becomes prominent, like a Tubercle, or Blister, let the Surgeon place a Finger on each Side of the affected Part; and, stretching the Skin, by drawing it, on both Sides, from the Whitloe, make the Incision: Thus will the Matter be discharged, and the Finger will generally heal spontaneously. *Hildanus*, in *Cent. 1. Obs. 97.* gives the following safe and ready Method of curing a Paronychia, which he had frequently tried with Success. He first fermented the Finger, several times, with the Decoction of the Flowers of the Chamomile, and Melilot, and Fenugreek, and Quince-seeds, boiled in Cows-milk; then he gradually cut off the Surface of Skin, where the Pain was. The Skin being thus removed, some red Specks appeared, in which, upon Incision, he found one or two small Drops of a red Water; and, this being discharged, he applied a Linen Cloth moistened with a Solution of *Venice Treacle* in Brandy; the Pain immediately ceased; and, next Day, the Finger was sound.

If the Disorder is seated near the Roots of the Nail, beneath it, or at either of its Sides, the Whole, or Part of the Nail, is generally lost. If the purulent Matter is concealed under the Nail, it affects the adjacent Parts with Inflammation, and most intense Pains. In this Case, *Solingen*, with other Surgeons, advises, first, to remove that Part of the Nail, under which the morbid Matter stagnates, either by extirpating it intirely, or by making an Incision in it; and, having exprest the Matter, the Wound may be easily healed, by the Application of Lint moistened with Spirit of Wine, or Lime-water.

If the peccant Matter lie deeper under the Skin, it must, also, be discharged by Incision, without Delay; for otherwise it would, probably, rather affect and consume the subjacent Bone; than



than burst the external Skin, which is generally both thicker and harder than in other Parts. If the Patient is unwilling to undergo the Operation, the Danger to which he exposes himself, should be remonstrated to him, and the Surgeon should be cleared from the Blame that may arise from the Consequences. In the mean time, in order to ripen the collected Matter, and bring it to Suppuration, apply to the Part a Plaister of Diachylon with the Gums. If, by this Method, the external Skin bursts, the Orifice must be immediately widened, if it be too narrow; and the Wound may be deterged by some digestive Ointment, or the Liniment of *Arcaus* warmed, and mixed with Spirit of Wine; and then apply the before-mentioned Plaister with a proper Bandage; but, if the Patient be willing to submit to a surgical Operation, it is to be thus performed. Let the morbid Finger be laid on a Table, with the affected Part upwards; then let a strong able Assistant firmly hold the Hand and Arm of the Patient, left, being almost unable to sustain the intense Pain, he should suddenly retract his Arm, which, in the Operation, would be extremely detrimental. Then let the Operator penetrate through the Middle of the affected Part, with a strong sharp-pointed Knife, to the very Bone. Thus the Skin and Fat being laid open to the Extremity of the Finger, the stagnant Blood, or corrupted Matter, may be discharged, though the Quantity be sometimes but small, and the Bone will be preserved from Infection.

In the second Species of Paronychia, when the Periosteum is corroded, and the peccant Matter has penetrated to the very Bone, an Incision should be made for its Discharge, according to the preceding Directions; but particular Care must be taken, that the Knife reaches to the Bone. Although little, and sometimes no Matter, appears to be evacuated, because the Quantity is sometimes extremely small; yet, if the Pain gradually remits after the Operation, it is a Signal of a speedy Cure.

Some Authors advise, always to make the Incision in one of the Sides of the Finger, and never in the fore or back Part of the last Bone, to avoid wounding the Tendons: But this is an unnecessary Caution; partly, because it is plain, that the Tendon reaches no farther than the Beginning of the last Bone of the Finger; and, partly, because we learn from Experience, that an Incision may be safely made, either in the fore or back Part of the Finger. *Garengot*, however, without offering any Reason for his Opinion, advises, that the lateral Method of Incision should be strictly observed; he likewise directs, that if the Pain does not abate, after the Operation is performed upon one Side, it must likewise be performed on the other, and upon this Account, because the Pain, continuing after the Incision, intimates that the true Seat of this Disorder had not been laid open. But, in my Opinion, the lateral Incision should only be used, when a Tumor appears on the Side of the extreme Phalanx of the Finger, or when it arises in the second and third Phalanges towards the Hand: On the contrary, I think, the Wound is better made in the Middle of the Extremity of the Finger, when all that Phalanx is affected, or when the morbid Matter indicates its Situation there. Besides, it will neither be agreeable to the Inclination of the Patient, nor the Reputation of the Surgeon, to make two Incisions, when Reason and Experience shew, that one may be sufficient.

The Incision being thus performed, the Blood should not only be suffered to flow out; but should, also, be carefully expressed. Then let the Wound be filled with dry Lint, over which apply a Diachylon-plaister, and the Compress in the Form of a *Malta* Cross, dipped in warm Spirit of Wine, securing the Whole with a proper Bandage. When the Dressings are taken off next Day, there generally appears a little fungous Flesh, which often alarms an unskilful Surgeon, but without a Cause; for it is no bad Symptom, and may, without Difficulty, be removed by the Scissars, by a corrosive Medicine, or by digestive Ointments mixed with a gentle Escharotic. The Wound may then be healed, like those in which the Bones are affected, with the Essence of Myrrh, or Amber, or with *Peruvian* Balsam. If the Bone appears to be corroded, the Wound should be filled, and kept open, with Lint moistened with the Essence of Myrrh, or of round Birthwort, till an Exfoliation of the morbid Part is procured, or, which often happens, the Bone comes away entire; for, till the first Bone be removed, the Wound cannot be healed.

The third Species of Paronychia, when the malignant Matter is lodged in the Vagina or Coat of a Flexor Tendon, has rarely occurred to my Observation. *Garengot* first laid down the Method of Cure in the following manner: In the small Tumor, which, with the intense Pain, generally discovers the concealed Matter to be lodged at the End of the Finger, must be made a longitudinal Incision, so as to penetrate the Vagina of the Tendon. After this Operation, some Lymph will be discharg'd, to the great Ease of the Patient;

but both the Disorder and Pain, contrary to all Expectation, will soon return. Sometimes the morbid Matter will spontaneously burst the Coat of the Tendon, and make its Way through the external Skin; and then the State of the Patient is the same as above. Near the Orifice, by which the Humour is discharged, appears a small Caruncle extremely sensible, which is continually moistened by Humours flowing from the Hand to the Fingers. He, therefore, orders a Director to be introduced through the external Orifice within the Coat of the Vagina; and then with a Knife, or Scissars, expeditiously to lay open the Flesh lying above the Director; by which means, a thick, inspissated Matter will be discovered at the Bottom of the Sinus. If, after this Operation, the Seat of the Disorder is not found, the Director must be again introduced, and the Operation repeated, till the Seat appears. If the Sinus of the Paronychia is situated in the middle Phalanx of the Finger, and the Incision is carried to the Middle of the first Joint, *Petit* advises to continue the Incision about a Quarter of an Inch into the Hand, in order to remove the Stricture which that Part of the Tendon, at the Extremity of the Finger, occasions, where it is hard, and, as it were, cartilaginous; but where the Tendon continues soft and membranaceous, there is no need for continuing the Incision into the Hand.

If the Disorder extends to the membranous Part of the Vagina in the Hand, and proceeds under the transverse and annular Ligaments of the Hand to the Arm; so that the Fat upon the *Musculus Quadratus* of the *Radius* begins to degenerate into a purulent Matter, the Director must be gradually and gently introduced into the Abscess, towards the transverse Ligament, and an Incision must be made into the incumbent Flesh, till it reaches that Ligament; which done, the Patient's Hand must be bent to relax the Parts; and then the Director being convey'd under the Ligament, an Incision must be made into the Skin and Flesh, as far as the Director can be perceived to reach. The Aperture being thus made, and sufficiently enlarged, the Tendons and Muscles about the Carpus must be with great Caution disengaged, so that the Abscess will gradually come in View, and sometimes a copious Discharge of the purulent Matter will be made. In the next Place, as *Garengot* informs us, *Thibaut*, late an eminent Surgeon at *Paris*, rightly advised, that, as is usual in making a Seton, we should convey a proper Cord through a Passage previously marked out by a Probe; since, by this means, at every fresh Dressing, the Matter collected in the Ulcer may be commodiously eliminated, and the Ulcer itself cleansed, whilst the Ligament is preserved entire. But if, by these Measures, a Remission of the Pains, the Fever, and other Symptoms, is not obtained, the most proper, and, at the same time, the most expeditious Method of the Relief is, according to *Petit*, forthwith to raise the Tendon that is most affected above the Ligament, and cut it off near to the Muscle; by which Method, he asserts, the Pain has instantly ceased, and the Patient been happily cured. He, also, thinks, that the transverse Ligament should be used in the same manner, if it is found to be affected with the purulent Matter and Inflammation, so as to excite acute Pains; the Success of which Practice is confirmed by the Instances of *Arnaud*, formerly a celebrated Surgeon of *Paris*. But, if the Probe cannot be readily convey'd under the transverse Ligament, an Incision should be made between the Radial Artery, and the Tendons of the Muscles, called *Perforatus*, and *Perforans*; which being cautiously enlarged, the Abscess should be searched, and the inclosed peccant Matter discharged. To recommend this Practice, *Garengot* relates an Instance of a Patient of *Arnaud's*, whose Case was so desperate, that the Surgeons judged that the Arm should be amputated, for the Preservation of the Patient's Life; but, upon *Arnaud's* dividing the transverse Ligament, the Patient was, in a sudden and surprising manner, cured. One Caution must be particularly observed, that the Hand be not extended during the Operation, nor for some time after; for, when the Hand continues bent, the divided Ligament will more readily unite, and the Hand recover its usual Motions: But if the Hand be imprudently extended, the Tendons under the divided Ligaments may start out of their Places; and the Hand never recover its proper Motions.

With regard to the Dressings, if the Vagina of a Tendon be opened, lay several oblong Dossils of dry Lint on each Side of the Tendon, by compressing of which the Hæmorrhage may be stopped. But if one of the large Blood-vessels be cut, so that the Bleeding is very copious, it ought to be stitched up with a crooked Needle and Thread; for corrosive and styptic Medicines, proper for suppressing Hæmorrhages in other Cases, cannot be safely used here. Warm emollient Cataplasms must be applied to the Hand and Arm, and carefully secured by the Eighteen-headed Bandage, represented *Tab. XXX. Fig. 4. B B.* The Advantage of this Bandage over the long ones is evident;



evident. because, when it is used, the Dressings may be removed at Pleasure, without moving or stretching the Parts. To finish the Dressing completely, the entire Part of the Bondage should be applied to the sound Part of the Limb, opposite to the Wound; and thus will the Dressings be more effectually secured by the Heads of the Bandage. *Heister's Surgery.*

#### PARONYCHIA.

The Characters are;

The Root is perennial, the Calyx shaped like a Bason, and divided into five Parts, which are shaped like a Capucin. The Flower consists of five Stamina, and the Ovary, which is seated in the Centre of the Calyx, produces a single erect Tube, and becomes with the Calyx a pentagonal Fruit, pregnant with a single Seed. The Flowers are surrounded with a Multitude of very thin Silver-colour'd Spangles, disposed in a Circle.

*Boerhaave* mentions two Sorts of *Paronychia*; which are,

1. *Paronychia, Hispanica. Clus. Hisp. 478. Polygonum, minus, candicans. C. B. P. 281.*

2. *Paronychia, Hispanica, nivea: polyanthos. Barr. Obs. 1137. Polygonum, montanum, niveum, Polyanthos. Barr. In. 725. Berth. Ind. alt. Plant. Vol. 2.*

It is called *Paronychia*, from *παρά*, *para*, near to, or importing Resemblance, and *ὄνυξ*, a Nail; because it is of a shining, Silver-like Colour, or, probably, from *Paronychia*, a malignant Ulcer, affecting the Part about the Nail; but, whether this Herb be of any Effect towards curing that Disease, I cannot say; only, that it is a remarkably emollient Plant. *Hist. Plant. adscript. Boerhaav.*

*Paronychia rutaceo folio.* A Name for the *Saxifraga*; *verna, annua, humilior.*

PAROPTÆ, *παροπταί*. The external Angles of the Eyes.

PAROPTESIS, *παροπτησις*, from *ἐνθάω*, to roast. A Provocation of Sweat, by making the Patient approach a Fire of live Coals, or by placing him in a Bagnio, or Stove.

PARORASIS. An Imbecillity of Sight.

PAROTIS, *παρωτις*, from *παρά*, importing near, and *ὅρ*, the Ear. One of the salivary Glands. See SALIVA. An Inflammation, or Abscess of the parotid Glands, is, also, call'd *Parotis*. See ABSCESSUS.

*Alexander Trallianus* lays down a very good Rule, in relation to a *Parotis*; that is, at first to be sure to bleed, before any discussing or drawing Application be made; that those who have been forward in doing this without Bleeding, have been the Instruments of strangling their Patients. And, upon the same Principle, he very justly explodes the Use of strong Repellers, and Astringents; such as Solanum, Alum, &c. He describes the Medicines which are proper to make these Parotids yield to Discussion: An Application which ought always to be attempted, where the Case is capable of being cured by it, rather than Suppuration: But if, upon this, the Tumor does not in the least subside, and the Pain continues, all Endeavours, he says, should be used to bring it to suppurate; and 'tis a Sign, that Matter is making, if a Rigor and Fever, which were not before, come on unexpectedly, and the Pain increases. And in this he agrees, in the main, with *Celsus*, who gives us a very good Distinction to guide our Practice in the Point; which is, when the Swelling comes originally of itself, without any other Distemper, to try moderate Repellents first, and Discutients; but where it attends or follows upon another Disease, as no Case is more frequent, it must then be brought to Maturation, and opened as soon as possible; for, in this Case, the Swelling is critical, and solves the Distemper. And *Hippocrates* pronounces those Parotids, which succeed long Fevers, mortal, unless they suppurate. When these are obstinate, and can't be ripen'd by external Applications, there have been Instances, where Burning has brought them to suppurate. And *Severinus*, and *Valesius* before him, have given an Account how they have tried this Practice in malignant Parotids, with Success. *Freind's History of Physic.*

There is a Species of Tumors, which arise with Inflammations in particular Parts of the Body; for Instance, under the Armpits, in the Groin, or under the Ears, in the parotid Glands; whence they are called *Parotides*; but, in the other Place, *Bubos*.

These Tumors are either mild, or malignant; they are said to be mild, when they arise spontaneously, without any preceding contagious or pestilential Disease, as they frequently do in growing Children; and these are generally not dangerous. Of this kind, also, are those which arise after gentle Fevers, being a critical Translation of the Disease. Those Bubos are called malignant, which happen in the Pestilence, or Venereal Disease; whence they are denominated Pestilential or Venereal Bubos.

The mild Bubos are produced, like all other Inflammations, proceeding from internal Causes, from a Stagnation of the

Blood, in a viscous inspissated State; and they differ from other Inflammations only in their Situation, under the Armpits, in the Groins, and below the Ears, in pinguious, glandular Parts.

The Diagnostic is easy, if we consider, whether they are preceded by a venereal or pestilential Infection.

The mild, or less dangerous, Species are seldom attended with any ill Consequences, as they may either be discussed, or brought to a Suppuration; but a speedy Discussion or Suppuration of them becomes more difficult in Persons of an ill Habit; and sometimes, from their Suppuration, proceed Fistulas, which cannot be easily cured. The Parotides are brought to a Suppuration with great Difficulty, the Inguinal Bubos with more Ease, and the Axillary, with very little Trouble.

Against those Bubos, which are unaccompanied with any other Disease, as in Children, the most effectual Remedies are Purgatives mixed with Mercurius Dulcis, which must be often repeated: By these Medicines, the glutinous inspissated Blood is discussed, and drawn from the Part affected. Other Medicines for attenuating the Blood should be, also, used; but, if the Tumor be attended with a slight Fever, a Physician should be consulted, in order to treat the Fever with proper Medicines.

When the Inflammation is very gentle, and a Discussion may be expected, for this Purpose, digestive Plaisters, as simple Diachylon, the Plaister of Sperma Ceti, Galbanum, Soap, or of Frogs with Mercury, may be outwardly applied.

If the Inflammation be more violent, and attended with more intense Pains, so that digestive Plaisters are of no Effect, it must, without Delay, be brought to a Suppuration; and for this Purpose apply a Plaister of Diachylon with the Gums. But, if the Pain be extremely severe, digestive Cataplasms often laid, warm, upon the Part affected, will not only mitigate the Pain, but, also, promote a Discussion. These Cataplasms may be made of the Crums of Wheat-bread boiled in Milk to a proper Consistence, with the Addition of a little Saffron; or of Meal, with Honey, and fresh Butter, mixed over the Fire, to which a little Treacle may be added.

These, and Cataplasms of the like Nature, should be often applied to the Tumor, till it appears to be suppurated; and then, without Delay, it must be opened either with a Caustic, or a Knife. But, in Incision, great Care must be taken to avoid wounding any of the large Blood-vessels near the Abscess, which might occasion a fatal Hæmorrhage. After the Abscess is opened, it may be treated as directed under the Article ABSCESSUS. A Plaister of Diachylon will be very proper to soften and discuss any remaining Hardness about the Mouth of the Ulcer. *Heister.* See SUPPURATIO.

PAROXYSMUS, *παροξυσμός*, from *παροξύω*, to irritate, or render sharp. A Paroxysm; Access, or Fit, of a Disease.

PARTHENIASTRUM. Bastard Feverfew.

The Characters are;

It has a radiated discous Flower, consisting of several Florets, which occupy the Disk; but are barren: The Half-florets, which are shaped like an Heart, are succeeded by black Seeds, which are naked, having no Down adhering to them: To which may be added, the Flower-cup is simple, and cut into five Parts to the Bottom.

*Miller* mentions two Species;

1. *Partheniastrum artemisiæ folio, flore albo.* Acad. Reg. Scien.

2. *Partheniastrum belenii folio.* Hort. Elth.

The first Sort grows wild, in great Plenty, in the Island of *Jamaica*, and in some other Parts of the *English* Settlements in the *West-Indies*, where it is called wild Wormwood, and is used by the Inhabitants as a vulnerary Herb.

The second Sort grows plentifully in several Parts of the *Spanish West-Indies*, whence the Seeds have been brought into *Europe*. They are both annual Plants. *Miller's Dictionary.*

PARTHENIUM. The same as MATRICARIA; which see.

PARTUS. A Birth. See OBSTETRICATIO.

PARVIBULUS. See BRACHYPOTÆ.

PARULIS, *παρυλις*, from *παρά*, near, and *ὄλον*, a Gum. A Boil, or Abscess, of the Gums.

A painful Tumor of the Gums, with Inflammation and Swelling of the Cheek, more or less, is sometimes occasioned by the Tooth-ach. These Tumors are called, by the *Greeks*, *Parulides*. They must be treated in the same manner with other inflammatory Tumors, by digestive Medicines. If these are not effectual, or if the Disorder be neglected, it sometimes degenerates into an Abscess, or Fistula. If the Disorder be recent, in order to alleviate the Pain, which will not suffer the Patient to sleep, and to discuss the Tumor, boil Chamomile, Sage, the Flowers of Elder, and the like digestive Herbs; and let the Patient often hold, for a considerable time, a little of the warm Decoction in his Mouth. Outwardly let him apply a Bag



Bag filled with the same Herbs, or a Plaister of Melilot, or simple Diachylon with Camphire; or, if these cannot be readily procured, apply a warm Cloth to defend the Part from the Cold, and obtain an easy Resolution; not omitting internally, diaphoretic and resolvent Medicines. If by these means a Resolution cannot be obtained, recourse must be had to Emollients, as Marshmallows, Mallows, Mullein, Figs, and the like, boiled in Milk, and frequently held in the Mouth. To accelerate the Maturation, apply half a Fig, roasted upon the Coals, to the Tumor; and outwardly an emollient Cataplasm upon the Cheek. As soon as the Softness indicates a Suppuration, an Incision must be made into the Tumor, with all Expedition, though the Matter should not be entirely matured; lest, by its Continuance there, the Bone should be affected and corroded; whence the most malignant Fistulas are often produced. The Ulcer being opened, the corrupted Matter must be carefully expressed with the Fingers; and then let the Ulcer be often cleansed with warm Wine, or a Decoction of Agrimony, and St. John's-wort, mixed with Honey of Roses; and the Wound will heal spontaneously. If the Disorder has penetrated deep, let the Decoction be injected with a Syringe; and, the Liquor being carefully pressed out, apply a Compress to the Bottom of the Ulcer, which must be secured with a Bandage, that it may begin to heal from the Bottom. But if the Ulcer should degenerate into a Fistula, which is often accompanied with a Caries of the Bone, after using the above-mentioned Injections, a little of the Oil of Myrrh *per Deliquium*, or of the Elixir Proprietary, should be instilled into the Ulcer for detarging and healing it. By this Method I have not only cured simple Ulcers of the Gums, but likewise a Fistula attended with a Caries of the Bone, even after it had continued above a Year. But, if none of these Medicines succeed, the Fistula must be laid open by Incision, and the Caries extirpated either by Medicines, the Rasp, or the actual Cautery. Sometimes a Fistula may be occasioned in the Gums by a corroded Tooth, which are usually called *Fistulas of the Teeth*, or *Maxillary Fistulas*; the Tooth, therefore, must be first extracted before the Application of proper Medicines. The *Miscellanea Berolensia* contain some particular Observations on the Parulides: Whence it appears, that suppurating Medicines have but little Effect; and that, if these Tumors are not quickly laid open by Incision, and the Tooth extracted, they degenerate into Fistulas. It is, therefore, a better Method, as we have already directed, to discharge the Matter early by Incision, although crude, than, by delaying it, to endanger a Caries of the Bone. *Schellhammer*, in 1692. published an excellent Dissertation *de Epulide & Parulide*, very proper to be consulted. See *EPULIS*. *Heister. Chirurg.*

**PARUS.** Offic. Bellon. des Oyse. 369. *Parus major*. Aldrov. Ornith. Gefn. de Avib. 578. Jonf. de Avib. 86. Charlt. Exer. 96. Mer. Pin. 178. *Parus carbonarius*. Schw. A. 318. *Parus carbonarius major*. Schrod. 5. 322. *Fringillago seu Parus major*. Raii Ornith. 240. Ejusd. Synop. A. 73. Wil. Ornith. 174. **THE TITMOUSE.**

This Bird is celebrated for its Virtues against the Stone in the Kidneys, and colic Pains, if eaten as Food, or burnt, and taken as a Medicine.

**PASIONIS PASTILLUS.** The Name of a Pastil, described by *Galen*, *Oribasius*, *Aetius*, and *Nicolaus Myrepsus*.

**PASMA.** The same as *CATAPASMA*.

**PASSA.** An Epithet for Grapes, importing their being dried in the Sun.

**PASSA**, in *Paracelsus*, is a Whitloe.

**PASSAVANTICUS PULVIS.** The Title of a cathartic Powder, described by *Schroder*, L. 2. Cap. 77.

**PASSER VULGARIS.** Offic. Schrod. 5. 322. *Passer*. Gefn. de Avib. 581. Bellon. des Oyse. 362. *Passer domesticus*. Aldrov. Ornith. 2. 534. Jonf. de Avib. 65. Schw. A. 321. Mer. Pin. 175. Wil. Ornith. 182. Raii Ornith. 249. Ejusd. Synop. A. 86. *Passer domesticus vulgaris*. Charlt. Exer. 86. **THE HOUSE SPARROW.**

Because it is a very salacious Bird, it is recommended, especially the Brain of it, as a Strengtheners and Incentive to Venery.

**PASSER TROGLODYTES.** Offic. Schrod. 5. 322. Aldrov. Ornith. 2. 655. Mer. Pin. 177. Gefn. de Avib. 588. Schw. A. 324. Jonf. de Avib. 82. Bellon. des Oyse. 341. Will. Ornith. 164. Raii Ornith. 229. Ejusd. Synop. A. 80. **THE WREN.**

The Bird is very much commended for its Virtue in the Attrition and Expulsion of the Stone, whether it be taken whole, and eaten raw season'd with Salt; or burnt to Ashes, and so exhibited. *Schroder*.

**PASSERINA.** The Name of a Plant, which *Parkinson* calls, *Passerina*, *Linaria folio*, Sparrows Toad-flax. Some make it a Species of *Linum*; others of *Lithospermum*.

**PASSIO.** A Passion, Affection, or Disease. Thus there

are the Iliac Passion, the Hysteric Passion, and many others, distinguished by their proper Epithets.

**PASSULÆ.** See *UVA*.

**PASSULATUM.** The Form of a Medicine, consisting of the Pulp of dry'd Grapes (*Passæ*) passed through a Sieve.

**PASSUM**, γλυκύ, Raisin-wine; that is, Wine made of dry'd Grapes, or of Grapes suffer'd to remain upon the Vine, till they are much wither'd by the Heat of the Sun.

**PASTA**, πᾶσα. A kind of Aliment, prepared, according to *Hesy chius*, of unsalted Cheese, fine Flour, and Sesamum. It is, also, explain'd, a sort of Gruel, made of bruised Puls, mixed with Meal; and, Pottage, thicken'd with Flour.

**PASTA REGIA.** A Lozenge.

**PASTA EPISPASTICA.** The blistering fine Paste.

Take of Cantharides in Powder, and Wheat-flour, each as much as you please; and of strong Vinegar, a sufficient Quantity, to make into a fine Paste.

**PASTÆTUM.** A Pasty; a well known Species of Aliment.

**PASTILLUS.** A Troche, or Pastil.

The *Pastillus ex Seminibus* is thus described by *Paulus Ægineta*, L. 7. C. 12.

Take of the Seeds of Anise, Bishops-weed, and Fennel, each four Drams; of the Seeds of Smallage, and Henbane, and of Opium, each two Drams. Bruise them in Water for Pastils.

**PASTINACA.**

The Characters are;

The Root is thick, carnos, and succulent; the Leaves are large and broad, and strengthen'd by a thick Rib. The Seed is oval, large, thin, marginated, and casts its Husk.

*Boerhaave* mentions eight Species of the *Pastinaca*; which are,

1. *Pastinaca sylvestris*; *latifolia*. C. B. P. 155. *Raii Hist.* 1. 409. *Synop.* 3. 206. *Tourn. Inst.* 319. *Boerb. Ind. A.* 66. *Pastinaca sylvestris Elaphoboscum*. Offic. *Pastinaca latifolia sylvestris*. Ger. quoad Descript. 870. *Emac.* 1025. *Park. Theat.* 944. *Pastinaca Germanica sylvestris*, quibusdam *Elaphoboscum*. J. B. 3. 149. *Bancia*. Offic. *Volck.* 320. **WILD PARSNEP.**

The wild Parsnep is much less than the Garden Parsnep, both as to the Thickness of its Roots, and the Height of its Stalks, which are not so much branched as those of the other. The Leaves are smaller, hairy, and of a strong Smell. The Flowers are small and yellow, growing not only on the Top, but coming forth from the Sides of the Stalks, at the Setting on of the Leaves, and are succeeded by the like Seed; It grows frequently by Hedges, and Way-sides, and flowers in *June*. The Root and Seed are used, though but seldom.

They are said to open Obstructions of the Liver and Spleen; to expel Wind, and help the Colic; to provoke Urine, and the Menies; and to be useful against the Bitings of venomous Creatures. *Miller's Bot. Off.*

It agrees in Virtues with the Garden Parsnep; which, as *J. Baubine* thinks, differs from it only in Cultivation.

2. *Pastinaca sativa*; *latifolia*. Ger. 870. *Emac.* 1025. *Raii Hist.* 1. 410. *Park. Theat.* 944. *Parad.* 506. *Raii Synop.* 3. 206. C. B. P. 155. *Tourn. Inst.* 319. *Boerb. Ind. A.* 67. *Pastinaca*. Offic. *Pastinaca sativa latifolia Germanica luteo flore*. J. B. 3. 150. **PARSNEP.**

The Parsnep is a Root well known to every one, being large, running deep into the Earth, not much branched, white in the Inside, of a pleasant sweet Taste; it has many large, winged, hairy Leaves, of a dull-green Colour, divided into several tripartite Sections. The Stalks grow to be five or six Feet high, much branched and channelled, beset with several smaller Leaves, which grow at the Divisions; on the Tops grow Umbels of yellow five-leav'd small Flowers; and, after them, come smooth, flat, oval Seed, two growing together, as in other umbelliferous Plants: It is planted in Gardens, and flowers in *June* and *July*. The Root is only used.

Parsneps are more used for Food than Medicine, being a pleasant nourishing Root, tho' somewhat windy; and thought to be Provocatives to Venery. *Miller's Bot. Off.*

It is said, that the Seeds of the wild Parsnep, twice sowed in a rich and fat Soil, produce Garden Parsneps, in the same manner as Garden Carrots are produced from the Seeds of the wild Carrots. *Casalpini* relates, that an Electuary is prepared of the Roots with Sugar, which is very much in Use among the Peasants for Women in Child-bed, and Persons recovering from Sickness, to renew their Strength; it, also, creates an Appetite. That it is of an inciding, attenuating, detarging, and deobstruent Quality, is evident, says *J. Baubine*, from the very Taste and Smell. They who pull the Roots in Winter, says the same Author, must beware of the *Cicutaria*, or



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*Cicutaria*; because, while he was at *Mompelgard*, he saw two Families, who were almost dead with eating the Roots of these Plants instead of Parsneps; but they recover'd by the Help of Vomiting, *Theriaca Andromachi*, *Pulvis Saxonicus*, and some Purgatives. It is an Opinion among our People, says *Ray*, that old Parsneps, which have endured Years in the Ground, induce Deliriousness and Madness; for which Reason they give them the Name of MADNEPS, that is to say, MAD PARSENEPS. *Raii Hist. Plant.*

3. *Pastinaca*; *sylvestris*; *altissima*. *T.* 419. *Panax costinum*. *C. B. P.* 156.

4. *Pastinaca*; *Olusatris folio*. *Boerb. Ind. A.* 67. *Panax Herculeum*. *Offic.* *Panax Heracleum majus*. *Ger.* 850. *Emac.* 1003. *Raii Hist.* 1. 410. *Panax Pastinacæ folio*. *C. B. P.* 156. *Panax Heracleum*. *Hist. Oxon.* 3. 315. *Panax Heracleum alterum sive peregrinum Dodonæi*. *Park. Theat.* 948. *Pastinaca sylvestris altissima*. *Tourn. Inst.* 319. *Sphondylium vel potius, Pastinacæ Germanicæ affinis Panax vel Pseudocostus flore luteo*. *J. B.* 3. 156. HERCULES's ALL-HEAL.

This is a large tall Plant, growing to be two or three Yards high, having many large Wings, of a yellowish-green Colour, a Foot or more long divided into five or seven Divisions, of longish round-pointed rough Leaves, crenated about the Edges, having one Side of the Leaf growing lower and deeper toward the Bottom than the other. The Stalk is hollow, having several Joints beset with the like Leaves; and on the Top roundish Umbels, of small yellow five-leav'd Flowers, each of which is succeeded by two broad flat oval Seeds. The Root is large, branched, of a yellowish Colour on the Outside, and white within. This Plant grows naturally in *Syria*, as, also, in *Italy*, *Sicily*, and the Southern Parts of *France*, though in these last Places it yields but little Gum. See *OPOPANAX*. *Miller's Bot. Off.*

The Roots of this Plant are said, by those who import it, to be effectual in all cold Affections of the Brain and Nerves, for Disorders of the Breast, and tormenting Pains of the Stomach; for all Obstructions of the Viscera, and Diseases of the Kidneys, Bladder, and Womb; on which Account, they are of Service in inveterate Pains of the Head, Vertigo, Epilepsy, Stupor, Lethargy, Convulsions, Palsies, Asthma, Cough, Jaundice, and Dropsy: They expel Wind, kill Worms, provoke Urine, and the Menstrues, break the Stone, and promote the Birth. The Decoction is given in Clysters, for the Colic and Sciatica. *Raii Hist. Plant.* The *Opopanax* is the concentered Juice of this Plant; an Account of which see in its proper Place.

5. *Pastinaca*; *folio quasi Libanotidis latifolia*. *Panax, folio glabro, nitente, lato*. *Ind.* 16.

6. *Pastinaca*; *femine longissimo*. *Panax, folio glabro, nitente, lato, altior*. *Ind.* 16.

7. *Pastinaca*; *sylvestris, altissima*. *T.* 319. *Hoc nomine misit D. Salvadori; differt à tertia, foliis majoribus, scabris, asperis*.

8. *Pastinaca*; *lativa*; *radice turbinatâ*. *Faill. Boerb. Ind. alt. Plant.*

This Plant has its Name *Pastinaca*, à *Pastu*, from Feeding, because its Root is much used in Food; it is, also, called *Elaphosium*, from *ελαφος*, (*Elaphos*) a Stag, and *βασκα*, (*basco*) to feed, because Deer eat the Herb.

It is a Plant of great Note in Medicine: The Seed hereof, with the Seed of the *Daucus*, are very serviceable in breaking the Stone. Hence there was a very celebrated Physician, who prescribed the Flour of these Seeds, together with the Root of Liquorice, reduced, also, to a Flour, in Cases which required Lithontriptics: It is, also, good for the Pain of the Colic proceeding from Phlegm; for the Strangury, Hiccups, and Obstructions of the Menstrues; it is hurtful in nephritic Disorders proceeding from a cold Cause. The second Species has a Root which is eatable, on account of its soft Pulp; and, boiled in Milk, is good for consumptive and lean Persons, being very nourishing. The third Species is by some taken for the Original of the *Opopanax*; its Seeds are not remarkably acrid. But the fourth is the true Plant whence the *Opopanax* proceeds; of which I made an Experiment this last Summer, when upon making a Wound in it, there flowed out a Juice, which, being a little inspissated in the Sun, had the perfect Smell and Taste of *Opopanax*. *Hist. Plant. adscript. Boerhaav.*

PASTINACA AQUATICA. A Name for the *Sium, latifolium*.

PASTINACA ECHINOPHORA. A Name for the *Echinophora*; *Pastinacæ folio*.

PASTINACA SYRIACA. A Name for the *Tordylium*; *Orientalis*; *Secacul Arabum dictum Rauwolfio*.

PASTINACA TENUIFOLIA. A Name for several Sorts of *DAUCUS*.

PASTINACA, is, also, the Name of a Fish, which is thus distinguished by Authors:

*Pastinaca*. *Salv. de Aquat.* 144. *Rondel. de Pisc.* 1. 331.

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*Pastinaca marina*. *Offic. Charlt. Exer.* 10. *Aldrov. de Pisc.* 424. *Jonst. de Pisc.* 19. *Gesn. de Aquat.* 679. *Pastinaca marina lævis*. *Bellon. de Aquat.* 95. *Pastinaca marina prima Rondeletii*. *Raii Ichth.* 67. *Pastinaca marina lævis Bellonii*. *Ejusd. Synop. Pisc.* 24. *Aquila Piscis, seu Pastinaca marina*. *Mer. Pin.* 185. THE POISON-FISH, FIRE, or FIERCE-FLAW.

It is taken in the main Sea; the Parts of it used in Medicine are the Liver, and the Prickle, which grows out of its Tail. The Liver is said to be good for the Itch; and, boiled in Oil, deterges the Lichen and Leprosy; the Prickle, as *Dioscorides* says, cures the Tooth-ach, by breaking and expelling the grieved Tooth.

PATELLA. The Knee-pan.

PATETHEISÆ, or PATETÆ UVÆ, *πατιθῆσαι*, or *πατεται σαφυλαί*, Grapes suffered to remain on the Vines, till they are much wither'd, and dry'd by the Sun.

PATHEMA, *πάθημα*. An Affection, or Disorder.

PATHEICUS. An Epithet of the fourth Pair of Nerves, so called, because they direct the Eyes to intimate the Passions of the Mind.

PATHOGNOMONICUS, *παθονομονικός*, from *πάθος*, a Disorder; and *γινώσκω*, to know. An Epithet for a Symptom, or Concourse of Symptoms, that are inseparable from a Distemper, and are found in that only, and no other.

PATHOLOGIA, *παθολογία*, from *πάθος*, a Disorder; and *λέγω*, to speak, or commemorate. That Part of Medicine, which explains the Nature of Diseases, their Causes and Symptoms.

PATIAS. The same as *Squama Eris*. *Rulandus*.

PATIENTIA. A Name for the *Lapathum*; *bortense*; *folio oblongo*; *sive secundum Dioscoridis*.

PATIENTIÆ MUSCULUS is a Name for the *Lena*; or *Scapulæ proprius*, otherwise called *Angularis*.

PATOR NARIUM. The Sinus, Cavity, or Chasm of the Nose. *Scribonius Largus*.

PATOS, *πάτος*. The same as *RHYPOS*; which see.

PATRIMONIUM. The Genitals are sometimes called by this Name. *Castellus*.

PATURSA. The Venereal Disease. *Castellus* from *Fallopianus*.

PAVATE. *Acostæ*. *Lugd. Cast. Ap.* *Arbor Erysipelas curans Lusitanis, Vavaveli Canarin*.

This is a Shrub which grows on the Banks of the Rivers *Memgate*, and *Cranganor*, in *America*.

The *Indians* use its Wood and Root, as Specifics against an Erysipelas. They reduce them to Powder, and infuse the same in a Decoction of Rice, till it becomes sour; and with this Liqueur they foment the Erysipelas, and make the Patient drink it twice a Day, after they have purged the Stomach. They give it, also, to those who labour under burning Fevers, Inflammations of the Liver, and Fluxes of the Belly. *Lemery des Drogues*.

PAUCIFERUS. An Epithet of Wine, importing the same as *Oligophorus*.

PAVEL. A Name for the *Momordica*; *Zeylanica*; *pampinea fronde*; *fructu breviori*.

PAVIA. The scarlet-flowering Horse-chestnut.

The Characters are;

The Leaves are like those of the Horse-chestnut, and conjugated; but so disposed, as to have every consequent Order cross the preceding. The End of the Pedicle becomes a long tubulous red Calyx, of the same Colour with the Flower, with a Margin divided into six Segments. Within the Calyx grows an anomalous pentapetalous Flower, so disposed, as, with its five Petals, to resemble a monopetalous bilabiated Flower; for the two upper Petals, in Conjunction, form a kind of Galea; the two lateral ones, the Jaws, and the under one, the Beard. The Flower incloses eight Stamina, each furnished with its Apex, and the Flowers are disposed in Spikes. The Ovary in the Bottom of the Calyx shooting forth a long, cylindrical, red Tube, becomes a tricapsular, trilocular Fruit, containing globular Seed.

*Boerhaave* mentions but one Sort of *Pavia*; which is,

*Pavia*. *An Ricinides, Americana, Castanea folio*. *Plum. T.* 656. *Saia monna Pisonis*. *Plukn. Phyt.* 56. 4. *Boerb. Ind. alt. Plant.*

The Flowers are like those of Brank-Ursine. Many Authors will have it to be the *Ricinides Americana*; but their Flowers do not agree. I am unacquainted with the Virtues of this Plant; but it is of an acrimonious Quality, like the *Tithymalus*. *Hist. Plant. adscript. Boerhaav.*

PAULA. The Name of a Plaster described by *Paulus Aegineta*, *Lib.* 7. *Cap.* 17.

PAULADADUM. A Name for the *Terra Melitæa*, otherwise called *Terra Sigillata Sancti Pauli*. *Dorneus* says, *Pauladadum* is a Species of Seal'd Earth, which is found in *Italy*.

PAVO.



PAVO. Offic. Schröd. 5. 322. Aldrov. Ornith. 2. 8. Mer. Pin. 172. Schw. A. 323. Gefn. de Avib. 393. Jons. de Avib. 37. Charlt. Exer. 80. Will. Ornith. 112. Raii Ornith. 158. Ejusd. Synop. A. 51. *Pavus & Pavo*. Bellon. des Oyse. 234. THE PEACOCK.

What is used in Medicine is the whole Bird, the Fat, Gall, Dung, Feathers, and Eggs. The Broth of a Peacock, especially if it be fat, is said to be a Specific against the Pleurisy; the *Fat*, with the Juice of Rue, and Honey, is an excellent Medicine for the Colic. The *Gall* cures Dimness of Sight, represses Defluxions of the Eyes, and cures the Asperities of the Eyelids. The *Dung*, dried and pulverized, and the Weight of a Dram macerated at Night in Wine, and exhibited for many Days together, has a peculiar Virtue of curing the Vertigo and Epilepsy. The *Feathers* are used in Suffumigation, for the Hysterics; and the Eggs are prescribed for the Cure of what they call the *Erratic Gout*. Dale from Schröder.

PAVOR. Besides Fear, the usual Signification, it sometimes imports the Itch. *Castellus*.

PAUSIS, *παῦσις*, from *παύω*, to cease. A Remission, or Cessation, of a Disease.

PAYCO HERBA. *Monard*. The Name of a Species of Peruvian Plantain.

The Powder of it, taken in Wine, is said to remove nephritic Pains proceeding from Flatulencies, or a cold Cause; and the Plant itself, boiled, and applied in Form of a Plaister to the Part affected, is said to work the same Effect; which *Monardes*, as he assures us, found to be true by Experience. *Raii Hist. Plant.*

PECHEDION, *πυχέδιον*. The *Perinæum*.

PECHYAGRA, *πυχυάγρα*. The Gout in the Elbow.

PECHYS, *πῆχυς*. The Elbow.

PECHYTYRBE. An Epithet for the Scurvy. *Castellus* from *Forestus*.

PECTEN. The Pubes. In Zoology, it signifies a Shell-fish, called a Scallop. These are esteemed a good Food, and are recommended as deterfive, aperitive, and carminative, and are said to increase the seminal Juices. The Shells agree with those of the Oyster in Virtues.

PECTEN VENERIS. A Name for the *Scandix*; *Gretica*; *minor*. Shepherd's Needle, or *Venus's Comb*.

PECTINÆUS MUSCULUS. This is a small flat and pretty long Muscle, broad at the upper Part, and narrower at the lower, situated obliquely between the Os Pubis, and upper Part of the Os Femoris. It is commonly a single Muscle; but I have sometimes found it double.

It is fixed above by fleshy Fibres to all the sharp Ridge, or Crista, of the Os Pubis, and to a small Part of the oblong Notch, or Depression, on the fore Side of that Crista, in which the upper Extremity of this Muscle is lodged.

Thence it runs down obliquely towards the little Trochanter, under, and a little behind which, it is inserted obliquely by a flat Tendon, between the superior Insertion of the Vastus Internus, and inferior Insertion of the Triceps Secundus, with which it is united.

The Pectinæus is an Assistant to the Psoas and Iliacus, in moving both the Thigh, and the Pelvis. It may, likewise, assist in bringing the Thigh inward, or toward the other, whether it be extended, or bent, at the same time. *Winslow*.

PECTINATIO. Combing the Head. This is recommended by some as an Exercise conducive to Health, and considered as a Species of Friction; it is certainly very useful, not to mention that, by cleaning the Head from Scurf and Dirt, it prevents Obstruction of the cutaneous Pores.

PECTORALIS. Pectoral; an Epithet for Medicines appropriated to Disorders of the Breast and Lungs.

The Pectoral Decoction is thus directed in the College Dispensatory:

Take of stoned Raisins, one Ounce; of Dactyls, No. six; of fat Figs, No. eight; of Barley cleaned, one Ounce: Boil these in three Pints of Spring-water to the Consumption of a third Part; towards the End putting in, of Liquorice-root, half an Ounce; of the Leaves of Maiden-hair, Ground-ivy, Scabious, and Coltsfoot, of each one Handful. Let them stand in Infusion a quarter of an Hour, and then strain out the Liquor.

#### PECTORALIS MAJOR.

This is a large, thick and fleshy Muscle, covering the fore Part of the Breast, from the Sternum, where it is very broad, to the Axilla, where it contracts in its Passage to the Arm. It is naturally divided into two Portions, one superior and small, which may be termed *Clavicular*; the other inferior and large, which we may call *Thoracic*.

The Clavicular Portion is fixed by a fleshy Insertion in almost half the Clavicle next the Sternum, ending under the Insertion

of the Sterno-mastoidæus. Thence it runs obliquely down to ward the Axilla, contracting by small Degrees; and ends in a flat Tendon, or tendinous Band. In this Passage, it borders on the anterior Edge of the Deltoides, from which it is distinguished only by a pinguious or cellulous Line, and a small Vein, named *Vena Cephalica*.

The Thoracic Portion is broad, and, in some measure, radiated. It is fixed by its anterior Circumference in the lateral Part of the Outside of the Sternum, in the Outside of the Cartilages, and in a small Part of the Bones of all the true Ribs, and of the first, and sometimes of the second, small Ribs. All these Insertions are like so many Digitations.

The Insertions in the Sternum end by a great Number of very short Tendons, which run toward the Middle of the Bone, meeting, and decussating those from the same Muscle on the other Side.

The lower Insertions are most distinctly digitated, and they mix with those belonging to the Rectus, and Obliquus Externus, of the Abdomen; there being, likewise, several Fasciculi of Fibres common to the Pectoralis, with these Muscles. This Portion is, also, fixed to the Ribs by internal fleshy Strata, covered by the external Insertions, and forming together with them the Thickness of the Muscle.

From thence all the fleshy Fibres contract in Breadth, and approach each other in their Passage to the Arm. The superior Fibres run downward, joining those of the Clavicular Portion; those next them run less obliquely; the following, more or less transversely; and the inferior run upward in the same manner. This whole Portion ends at length in a flat Tendon, joined to that of the small Portion, and folded back upon it in the following Manner:

The inferior fleshy Fibres of the Thoracic Portion, before they reach the Tendon in their Passage to the Arm, are gradually turned inward under each other, and then run up behind the Extremities of the superior Fibres. By this Turn, the lower Part of the Tendon answers to the superior fleshy Fibres, the middle Fibres of both to each other, and the upper Part of the Tendon to the lower fleshy Fibres, and so on: Thus the Tendons of both Portions, adhering closely by their flat Sides, and united at their Edges, form a double tendinous Plane, the Fibres crossing each other. The anterior, or external Plane, belongs to the Clavicular Portion; the internal, or posterior Plane, to the Thoracic Portion.

The Tendon thus formed is inserted according to its Breadth, at about one fourth Part of the Length of the Bone from the Head, in the osseous Ridge of the great Tuberosity, that is, in the outer Edge of the Groove or Chanel, the Cavity of which it lines in Conjunction with another Tendon, by a Stratum of very thin, shining transverse Fibres. This Insertion lies between that of the Tendon to the Deltoides, which it touches, and that of the Latissimus Dorsi, which is on the other Side of the Groove.

This Muscle, together with the Deltoides, sends off an Aponeurosis, which, joining that of the Biceps, is spread over the Muscle of the Arm. It partly covers the Pectoralis minor, and Serratus major; and by its broad Tendon it covers transversely the Brachial Chanel, and the Tendon of the Biceps lodged there. Lastly, it forms the anterior Border of the Hollow of the Axilla, as the posterior is formed by the Latissimus Dorsi.

The Pectoralis major serves in general to bring the Arm near the Ribs, to press it strongly against them, and to carry it towards the fore Part of the Thorax. This last Motion may be performed without separating the Arm from the Ribs, as when one Arm is crossed over the other; and it may likewise be done with the Arm raised, as when the Hand of one Side is laid over the Shoulder of the other Side; and in that Case the anterior Portion of the Deltoides may assist this Muscle in great Efforts.

By means of the Fold in its Tendon, the superior and inferior Portions may act as two distinct Muscles, that is, one may act without the other. The superior fleshy Portion, which answers to the lower Portion of the Tendon, serves chiefly to raise the Arm forward.

The inferior fleshy Portion, which is joined to the upper Portion of the Tendon, by its Insertion in the Os Humeri, and by the Connection of that Bone with the Scapula, may depress the Shoulder, or keep it from rising, with more or less Force, much after the same manner as the inferior Portion of the Latissimus Dorsi; the inferior Portions of these two Muscles concurring in the same Use; as when we support ourselves upon our Hands, or walk with Crutches.

It is, likewise, by means of the lower Portion of this Muscle, that we can suspend the whole Body by the Hands grasping the Branch of a Tree in climbing, and the like. In this Case, also, the Latissimus Dorsi acts in Concert with the Pectoralis; and this Co-operation the Painters and Carvers have taken Care to express in Crucifixes.

The



The inferior Portion of this Muscle cannot perform these two Uses, without the Assistance of the Muscles of the Abdomen, which, by pulling the Ribs downward, become, in a manner, a Continuation of the Insertion of this Portion. The same thing may be observed concerning that Part of the inferior Portion of the Latissimus Dorsi, which is inserted in the false Ribs.

The Uses of the superior Portion of all the Body of the Pectoralis cannot take place without the Co-operation of the Muscles, which move the Scapular on the Trunk, especially the Serratus major; because the Scapula must be securely fixed, before it can be a Fulcrum for the Os Humeri to move upon. The same thing is to be observed concerning the Deltoides, and all the other Muscles which move the Os Humeri on the Scapula. *Winslow.*

PECTORALIS MINOR.

This is a small fleshy Muscle, something of a triangular Shape, situated at the superior, lateral, and anterior Part of the Thorax.

By its Basis it is inserted in the external Labium of the upper Edge of the second, third, fourth, and fifth true Ribs, near their Union with the Cartilages, by the same Number of Digitations, or separate fleshy Portions, because of the Intervals between the Ribs; and for that Reason it has been called *Serratus minor Anicus*.

From thence these Portions run up more or less obliquely toward the Shoulder, and form a fleshy Belly, which contracts as it passes before the two first Ribs; and then, becoming a short, flat, and broad Tendon, is inserted in the upper Part of the Apophysis Coracoides of the Scapula, reaching all the Way to the Point of that Process.

This Muscle is covered by the Pectoralis major, and adheres very closely to the external intercostal Muscles. The Digitations commonly taken notice of cover and hide several others, by which the Number of Fibres, and Thickness of this Muscle, are increased. Its Tendon unites a little, at the Apex of the Coracoid Apophysis, with the Insertion of the Coracobrachialis, and with that of one Portion of the Biceps.

The Pectoralis minor assists the Rhomboides and Angularis, as Moderators of the Action of the Trapezius, and Serratus major, in turning the Point of the Acromium upward, the superior Angle downward, and the inferior Angle forward.

It is, likewise, an Assistant to the Rhomboides and Angularis, in restoring the Scapula to its natural Situation, when the Trapezius and Serratus major cease to act; by drawing downward the Apophysis Coracoides, in which it is inserted.

It has been reckoned among the Muscles employ'd in Respiration, by some who imagine, that, in some Cases, the Shoulder may be kept so steady, as that this Muscle may be able to raise the Ribs in which it is fixed. But as the Serratus major, which must principally be employ'd in keeping the Shoulder in a fixed Position, is partly inserted in the same Ribs, and in this Action must keep them depressed, it will be impossible for the Pectoralis minor to raise them. *Winslow.*

PECTUNCULUS. Offic. Schonef. Ichth. 55. *Pectunculus vulgaris, albidus, rotundus, circiter 26 Strius majusculis, & planioribus donatus.* List. Hist. A. A. 189. *Capite minore, rotundiore, & magis aequali margine.* Ejsd. Hist. Conch. N. 171. *Concha striata altera.* Rondel. de Aquat. 2. 21. *Concha striata altera Rondeletii.* Aldrov. de Exang. 449. *Concha cordiformis aequaliter umbone cardinum unito striato.* Lang. Meth. Test. 60. THE COCKLE.

The Fish is esteemed a delicious Food, either raw, or boil'd. Of the Shells calcin'd, and powder'd, excellent Dentrifices are prepared. *Dale.*

PECTUS. The Breast. See THORAX.

PEDAGRA. Tartar. *Rulandus.*

PEDETHMOS, *πυθμός*. The Beating, or Pulsation, of the Arteries. *Hippocrates.*

PEDICULARIS. See ALECTOROLOPHUS.

PEDICULATIO. The lousy Evil. See PHTHIRIASIS.

PEDICULUS. Offic. Schrod. 5. 345. Aldrov. de Insect. 542. Jons. de Insect. 89. Mouff. 259. Charlt. Exer. 52. Mer. Pin. 202. THE LOUSE.

Lice are taken by the Country-people, as a Remedy against the Jaundice, and an Atrophy. *Schroder* takes notice of a very whimsical Use of this Insect, which is, to put it into the Beginning of the Urethra, in order to excite Urine.

PEDICULUS, in Botany, is the Foot-stalk. See the Explanation of Terms under the Article BOTANY.

PEDILUVIUM.

This Word signifies no more than a Bath for the Feet, which may be prepared of the same Ingredients with other Baths; and, as it requires a less Apparatus, is for that Reason frequently used as a Succedaneum to them; for a Bath for the Feet may either consist of pure light Water alone; or, in order to correct the Qualities of heavy and hard Waters, a Lixivium, or Bran of

Wheat, or Chamomile-flowers, may be added; or such Waters may be mixed with Milk. But, tho' Baths for the Feet are only immediately applied to the inferior Parts and Extremities of the Body, yet their Virtues and Efficacy diffuse themselves farther, and alleviate violent Disorders in remote and distant Parts of the Body; for, whilst the Feet are cherished with such a warm Liquor, the nervous, tendinous, and muscular Fibres, by the Intertexture of which they are formed, are relaxed and unbended; the Pores and Ducts, before constricted, are enlarged; the Blood has Access to the Parts; and the Return of the Humours from them is rendered free and uninterrupted. By this means, the Impetus of the Blood on other Parts is diverted; and, to the surprising Relief of the Patient, derived to the inferior Parts. Besides, Baths for the Feet, by their temperate Heat, act upon the Blood and Humour, which, during their Use, pass through the Vessels of the Feet, render them more thin and diluted, and by that means qualify them for passing more expeditiously through all the various Ducts and Parts of the Body. Hence it is, that, if pretty hot Baths for the Feet are used, they increase the Pulse, and excite a Sweat over all the Body. Besides, the Consent of the Feet, as being nervous and tendinous Parts, of an exquisite Sensation, is so great with all the other nervous Parts of the Body, especially those of the Abdomen, that, if the Feet are only rendered thoroughly cold, a Colic is forthwith produced, the Patient becomes costive, the Skin is render'd rough, Perspiration is intercepted, and the salutary Evacuations from the Uterus, and hæmorrhoidal Veins, stop. For this Reason, 'tis not to be doubted, but when the Feet are fomented, and their spasmodic Stricture removed by means of a tepid Liquor, the salutary Effect must, also, be propagated to those remote Parts of the Body, with which they have so near and immediate a Consent.

Baths for the Feet are certainly highly expedient for the Purposes of Derivation in those Diseases which arise from Congestions of the Humours to the Head and Breast, produced by Spasms of the inferior Parts, and, especially of the Hypochondria. Among this Kind, besides lethargic Diseases, we may reckon almost all Disorders of the Head, such as Madness, melancholy Cephalæas, Hemicranias, the Clavus Hystericus, Vertigos, Tooth-achs, Pains of the Ears, a Gutta Rosacea, Inflammations, and Defluxions of saline Humours on the Eyes, immoderate Hæmorrhages from the Nose, and long Watchings. Of this Kind are, also, some Disorders which affect the Bre. P., such as convulsive Asthmas, Dyspnœas arising from a Plethora, Palpitations of the Heart, dry Coughs, and Spittings of Blood. Besides, Baths for the Feet, in consequence of their singular Efficacy in relaxing Spasms, are highly beneficial in spasmodic and convulsive Disorders, in Pains, Cardialgias, Colics, especially of the hæmorrhoidal Kind, Gripes produced by the Stone, and Inflations of the Stomach, accompanied with an Uneasiness of the Pæcordia. Besides, Baths for the Feet promote the salutary Excretions by Perspiration, Urine, and Stool, together with those made from the Uterus, and hæmorrhoidal Veins, by procuring a free Circulation of the Blood, attenuating the Humours, and soliciting them to the Emunctories of the Body. Baths for the Feet, also, remove and prevent very terrible Disorders of the Head and Breast, especially those which return at certain Periods; and I myself, says *Hoffman*, have known the daily Use of these Baths for the Feet remove the most terrible and obstinate Cephalalgias. Some, also, in intermittent Fevers, advise the Use of these Baths, tho' not on the Days of Remission. And this Piece of Practice is productive of very salutary Effects, as is obvious from *Obs* 144. *Decul.* 2. *An.* 6. *Miscell. Nat. Curios.* where we have an Account of a Quartan Fever cured by means of Foot-baths, and *Kozak de Salib. Sect.* 12. *Cap.* 10.

But 'tis to be observed, that Baths for the Feet produce far more happy Effects, if, before they are used, the Quantity of Blood is lessen'd by Venesection in the Feet; if they are used about Bed-time, and the Feet not exposed to the Cold after them, but kept duly warm, till the Patient gets to Bed; by which means the Perspiration, all over the Body, is increased. But Baths for the Feet must not be used about the Time the Menstrues are about to flow, or already present, because, by diverting the Course of the Blood from the Uterus, and soliciting it to the inferior Parts, this salutary Discharge is either stopped, or prevented. On the contrary, Baths for the Feet, used some Days before the stated Period for the menstrual Discharge, excellently promote it, especially if, at the same time, the Pilule Becheri, or temperate Emmenagogues, are used. We must, also, carefully abstain from astringent, aluminous, and sulphureous Baths, in order to prevent a Sweating of the Feet, discuss œdematous Tumors, cure Ulcers, or remove arthritic Pains; since by means of such astringent, aluminous, and sulphureous Baths, the virulent Matter is repel'd to the internal and more noble Parts. And because the common hot Spring in the *Caroline* Baths, commonly call'd *Der Prudel*, is



# P E L

possessed of an highly repellent Quality ; so bathing in it ought to be very cautiously used in all Disorders affecting the Surface of the Body, and more especially in gouty and arthritic Pains. *Hoffman.*

PEDION, *πεδίων*. The Sole of the Foot.

PEDORA. The Sordes of the Eyes, Ears, and Feet. *Castellus.*

PEDRO DEL COBRA. See COBRA DE CAPELLO.

PEDRO DEL PORCO. See HYSTRIX.

PEDUNCULUS. The same as PEDICULUS, with respect to both Significations.

PEGANELÆON, *πηγανέλαιον*. Oil of Rue.

PEGANERON, *πηγανηρόν*, according to *Gorræus*, is the Name of a Plaister, described by *Aetius*, and *Paulus Ægineta*, in which Rue is an Ingredient.

PEGANION. A Name for the *Ruta, sylvestris, minor.*

PEGANUM, *πήγανον*. Rue.

PEGE, *πηγή*. A Fountain. But the internal Angles of the Eyes are call'd *πηγαί*. *Pega.*

PEGERNUS. Mercury. *Rulandus.*

PELA. A Name for the *Guajava ; rubra ; acida ; Fructu rotundiori.*

PELADA. A kind of *Alopecia*, or shedding of the Hair, from a Venereal Cause. *Castellus* from *Forestus*.

PELAMYS, *πελαμύς*. The Tunny fish. See THUNNUS.

PELARION, *πυλάριον*, from *πυλός*, Mud. The Name of a *Collyrium*, described by *Paulus Ægineta*, *Lib. 7. Cap. 16.* and of a Plaister, in the same Author, *Lib. 7. Cap. 17.* See EDESSINUM.

PELECANUS. The Pelecan. See ONOCROTALUS. An Instrument for drawing Teeth, is, also, called a *Pelecan*.

PELECANUS. A Pelecan, or Vessel of Glass, formerly used in Chymistry, for the Digestion and Circulation of Liquors, poured in at their narrow Necks, which were afterwards Hermetically seal'd. The Figures of the Pelecans were various ; some were round, and others long. But, at present, we use, instead of the Pelecan, two Matrasles, the Neck of one of which enters into that of the other. *Lemery Pharmacop. Univers.*

PELECINUS.

The Characters are ;

It is, in all respects, like the *Astragalus*, except that the Pod is flat, long, bicausular, bivalve, and full of Kidney-shaped Seeds.

*Boerhaave* mentions but one Sort of *Pelecinus* ; which is,

*Pelecinus vulgaris*, *T. 417. Lunaria, radiata Robini. J. B. 2. 348. Securidaca peregrina. Clus. H. 238. Boerb. Ind. alt. Plant. Vol. 2.*

There are no Medicinal Virtues ascribed to this Plant at present, that I know of.

PELIAS. The Name of a Serpent, mentioned by *Aetius*, *Tetrabib. 4. Serm. 1. C. 32.*

The now quoted Author informs us, that the Symptoms attending the Bites of the *Pelias* were so generally known, that no Author before him had described them. Those, however, says he, who are bit by the *Pelias*, have a Pain and Putrefaction about the Part affected, which, nevertheless, are not dangerous. They are, also, afflicted with a Dimness of Sight, in consequence of a Distribution of the Poison to their Eyes. Patients labouring under this Misfortune are cured by the Juice of Pissan, and Oil, exhibited in some proper Liquor, by way of Drink ; as, also, by a Decoction of the *Oxylapathum*, and the simple Remedies proper in a Jaundice. The Eyes of such Patients are to be washed with the Urine of young Persons who are Strangers to Venery, both by itself, and when mixed with Brine. Their Heads are, also, to be anointed with the same. Then, after purging the Body, their Eyes are to be anointed with Opobalsam and Honey, or with some Collyrium capable of increasing the Sight, and removing the Obstructions of the Vessels ; for, by this means, the Poison will be discharged along with the Tears. But, if this Practice should be succeeded by a Pain of the Eyes, it must be allay'd by means of mild Collyriums, which operate without inducing a Stupor of the Parts. See ELARS.

PELICIDE. Boiled Honey. *Rulandus.*

PELIOMA, *πελίωμα*. A livid Sugillation.

PELLICULA. A Pellicle, or thin Membrane.

PELLIS. A Skin of an Animal. In a Dropsy, or Inflation of the Uterus, *Riverius* directs the Skin of a Sheep just killed, and sprinkled with generous Wine, to be applied to the Belly. Some of the *French* Writers in Midwifery advise to involve the Belly in a warm Sheep-skin, after a difficult Labour ; and the same is an excellent Application, by way of *Fortis*, in case of inflammatory Pains of any of the Viscera.

PELMA, *πέλμα*. The Sole of the Foot, or a sort of Sock adapted to the Sole of the Foot, made of Leather, or any other Substance.

PELORIS. The same as *Chama*.

PELTATIS CARTILAGO. A Name for the Scutiform Cartilage of the *Larynx*.

# P E N

PELVIS. A Name for the inferior Part of the Cavity of the *Abdomen*. See ABDOMEN. It is formed by the *Offa Ilea*, and *Ischia*, the *Os Sacrum*, and *Os Coccygis*, and the *Offa Pubis*. See INNOMINATA OSSA. If the *Pelvis* is too small, or too flat and narrow, it is evident, that these Circumstances must occasion a difficult Birth : But *Henricus à Deventer* says, that a too great Wideness of the *Pelvis* is frequently an Obstruction to the Birth, and of bad Consequence. By too large a *Pelvis*, says this Author, I mean one, which, when compared with the *Fœtus*, and the Uterus, is so large, as without any Pains easily to suffer the Head of the Infant, together with the Uterus, as yet closed up, to fall down to the Lips of the Pudenda. In consequence of such a large and capacious *Pelvis*, the superior Parts of the Uterus are either not sufficiently, or not at all, surrounded and retain'd. Hence, neither the Head of the *Fœtus*, nor the Waters, can, by the Force and Impression of Pains, act sufficiently on the Mouth of the Uterus, to open it ; so that the Pudenda alone must retain the Uterus, and hinder it from falling entirely out of the Body along with the *Fœtus*. In a Case of this kind, the Waters are generally perceived to possess a large Space ; and their containing Membrane is sometimes found to protuberate so much without the Lips of the Pudenda, that the Infant seems ready to be discharged, and brought into the World with them ; and, when this Circumstance happens, it is attended with little Danger, and renders the Labour easy : But, sometimes, the Mouth of the Uterus is thick and hard, whilst, at the same time, the Vagina is lax. Hence the former is with Difficulty, and the latter with Ease, dilated : In which Case the Waters, tho' not possessing a large Space, are yet discharged from the Body, with a great Impetus ; and the Mouth of the Uterus penetrates far into the Pudenda. Then the Membrane being broken, not only the Head of the Infant appears without the Lips of the Pudenda, but, also, the Mouth of the Uterus ; and, unless this latter is duly retained, it falls so far down, in consequence of the excessive Relaxation of the Vagina and Ligaments, as to pave a Way not only for a Falling out of the Vagina, but, also, of the Uterus. For this Reason, 'tis the Duty of the Midwife, as soon as possible, to replace and retain the Mouth of the Uterus, before it falls down so far ; for, in this Case, the Hands of the Midwife must perform the Office of the Vagina. *Heur. à Deventer Operat. Chirurg.*

PELVIS AURIUM. The *Cochlea*. See AURIS.

PELVIS CEREBRI is the *Infundibulum*. See CEREBRUM.

PELVIS is, also, a Name for the Cavity of the Kidneys, which receives the Urine, and conveys it to the Ureters. See RENES.

PEMPHIGODES, or *Pemphingodes*, *πεμφιγώδεις ή πεμφιγώδεις πυρετοί*. Fevers, distinguished by Flatulencies and Inflation, or a windy Spirit ; in which we feel a sort of aerial Effluvia passing through the Skin of the Patient, in manner of an Exhalation, and striking upon the Touch. This is the Sense which *Galen* seems to chuse among various others, which he gives us of the Word *πεμφιγώδης*, in his Comment on 6 *Epid. Sect. 1. Aph. 17.* where it is used by *Hippocrates*, Sometimes by the Term *Pemphingodes*, as *Galen* says, is meant, a Fever attended with pustulous Eruptions, and, therefore, of a pestilential kind ; sometimes a Fever which seems to strike the Touch, like Sparks of Fire, penetrating through the Skin ; and sometimes a Fever attended with a Delirium, according to the various Significations of the Word *πεμφιγώδης*, which he there gives us. *Πεμφιγώδεις πυρετοί*, in *Galen's Exegetis*, are expanded to be Fevers in which there is a Redundance of Humidities, or Flatulencies. The Author of the *Definitiones Medicæ* tells us, that *πεμφιγώδης πυρετός*, is a Fever, which, by the Intensity of its Heat, excites Pustules in the Mouth ; and *πεμφιγώδης*, in *Varinus*, is a Breath, Spirit, and Ray of the Sun. Some will have *πεμφιγώδης πυρετός*, to be a Synochus, not of the putrid Kind, but proceeding from a Redundance of hot Blood, by its Fervor and Ebullition distending and inflating the Veins ; and, therefore, it is called, by Practitioners, an *Inflative Fever*. *Foessius.*

PEMPTÆUS, *πεμπταίος*. An Ague, the Paroxysm of which returns every fifth Day.

PENICILLUS. A Pledget, or Tent.

PENIDIUM SACCHARUM is thus prepar'd. Dissolve Sugar as much as you please, and clarify it with the White of an Egg ; then strain and inspissate it gently, or slowly, till great Bubbles appear : This done, take it off the Fire, till the Bubbles subside ; and then pour it out upon a Board, which has been rub'd over with Oil of Almonds ; and, when it is somewhat harden'd, take it up with your Hook, and with your Hands, sprinkled with Starch, speedily reduce it into its proper Form, and lay it up for Use. *Schrader.*

PENIS. Having given, under the Article GENERATIO, a general Account of this Organ, I shall, in this Place, insert the curious Remarks of Mr. *Cowper*, relative thereto.

*Regnerus de Graaf*, in his elaborate Treatise of the Organs of Generation, has accurately describ'd this Part ; and *Ruyfch*, in



in his late Anatomical and Chirurgical Observations, demonstrated the Structure of its Glans, which the Former has not so well observed; to which I shall add what a strict Inquiry on this Subject has given me occasion to discover.

I shall not here repeat those many synonymous Appellations, which lascivious Wits, or other sedulous Authors, have invented. The *Penis* is an Organ contriv'd by the Author of Nature, for the Ejection of the Seed, and Emission of Urine, composed of certain spongy and cavernous Bodies, with their Vessels and Integuments, of which in their Order. First, of its external, or common containing Parts, as the *Cuticula*, *Cutis*, and *Membrana Carnosa*.

In the *Cuticula*, we could never observe any considerable Difference from that of other Parts, except on the Glans, where we find, by the Assistance of a Microscope, that its exterior Surface is villous or downy.

The true Skin, or *Cutis*, in this and the *Scrotum*, is much thinner than we find it in other Parts; and both have a peculiar Disposition of their Blood-vessels: The Arteries are called here *Pudenda*, which, arising from the external Branch of the Iliac, and running under the superior Part of the Skin of the Penis, divide themselves into many Branches, the larger of which are still subdivided, till they become capillary; from whose Extremities are continued so many Veins, which, again, uniting into larger Branches, pass into those that partly arise from the *Corpora Cavernosa Penis*; and, marching under the common Integuments, empty themselves into the upper Part of that continued from the *Saphena Vein* of the Foot: These, for Distinction, we call *Vene Præputii*.

Besides the Blood-vessels now mention'd, it has Lympheducts, which I had first an Opportunity of observing, by injecting this Part with prepar'd Mercury; which confirms the Opinion of *Scheelhammer*, and the accurate *Nuck*, concerning the Origin of these Ducts: But whether they arise here from that Part of the *Canalis Sanguineus* call'd the Artery, or the Vein, did not appear from my Experiment; since I made Injection into both promiscuously: I observ'd divers Trunks on each Side, passing under the common Integuments accompanying the *Vene Præputii*, which (as I suspect) afterwards empty themselves, like those arising from the inferior Parts, into the *Glandulae Inguinales*. This Contemplation may serve to inform us, how the morbid Matter comes to be convey'd more particularly to those Glands in Venereal Cases, and cause those Tumors that frequently happen on that Occasion, commonly called *Buboes*; which Conception is the more confirm'd, by observing those Phenomena that are previous to that Effect, as Ulcers and Inflammations on the Prepuce, and by the too early Use of astringent Topics, which probably may inspissate the reflux Lymph, and render it unfit to pass through those *Vesiculæ Glandosæ* into their exporting Lympheducts; from which Obstruction begun, a Tumor may arise: Hence an Account may be, also, given, how soon the Malignity may be sometimes convey'd into the Mass of Blood, by the common Passages of the Lymph; and a very good Reason offer'd for the Practice of opening those Tumors before the usual Time of Suppuration.

In that Part where the *Præputium* is contiguous to the *Balanus*, my very good Friend, that judicious Anatomist Dr. *Tyson*, has discover'd certain small Glands, which he calls, from the great Scent their separated Liquor emits, *Glandulae Odoriferæ*: Their Number is uncertain; in those that have the *Præputium* longer than ordinary, they are not only more, but, also, larger, and separate a greater Quantity of their Juice, which, being lodged there, often grows acrid, and corrodes the Glans. They are very conspicuous in most Quadrupeds, particularly in Dogs and Boars, in the latter of which, their separated Liquor is contain'd in a proper Cist, at the Verge of the *Præputium*; out of which there is a large Aperture, whereby it is remitted again to lubricate the Penis of that Animal.

The third common Tegument is the *Membrana Carnosa*; this Part commonly wanting Fat, for divers Reasons: First, lest its Erection into that necessary Stiffness should be thereby hindered: Secondly, lest it should be too bulky; and, lastly, it would have dull'd the Pleasure the Male is affected with in Venereal Enjoyments: But whether these Considerations induced the Author of Nature to frame this Part without a *Membrana Adiposa*, does not appear, since its want of Fat may not unlikely depend on its great Alteration from that Placidity when it is not erected, to that Extension of it when it is. In the former, tho' we can conceive no great Obstacle, why its Adipose Cells should not be supply'd with their Oil, except its too great Laxity should retard the influent Blood in its Passage through its Papillary Arteries; yet, in the latter, its great Extension may not unlikely compress them to void their contained Oil; which may be the Cause, why the Interstices of the Muscles, and other Parts most quiescent, are subject to be fill'd with Fat. And in the Penis itself in Children, before Erection has been frequent, I have observ'd its *Membrana Adiposa* to be extended with Fat;

but, afterwards, tho' the Membrane remains, yet the Increase of Fat is hinder'd, and therefore we find it commonly without: Yet, in some Subjects, and those adult too, I have found it almost cover'd with Fat; but what Inconvenience the Party suffer'd when living, was not my Fortune to be acquainted with.

I come next to take notice of its Ligaments; first, of that called the *Frænum*, which ties the Prepuce to the lower Part of the Glans. This, in some, we have found so short, that we have been oblig'd to divide it to procure a complete Erection; in others, I have been oblig'd to do the like, where a Cicatrix has been made after large Ulcers on it, which frequently happens in Venereal Infections.

The next Ligament which I shall speak of, I call *Suspensorium*: Altho' it has escap'd the Observation of Anatomists, yet it is very conspicuous, and of remarkable Use; of which hereafter, when we come to give an Account how this Part becomes erected. It ariseth from the anterior Part of the *Offa Pubis*, and is fix'd to the upper Part of the *Dorsum Penis*, on each Side its great Vein. The rest of the Ligaments are such as compose its Capsulæ, or divide them as their Septums: These we shall mention in treating of its internal or contained Parts; which are, the two *Corpora Cavernosa Penis*, the *Corpus Cavernosum Urethrae*, their *Septums*, Muscles and Vessels, of which as they appear in Dissection.

First, of the Vessels that carry Blood to it, as, the Arteries. They arise, sometimes, from the *Rami Iliaci interni*; at other times, from the inferior Parts of the umbilical Arteries: Whence an Account may be given, why this Part is less than usual, by tying the Umbilical Rope too close to the Belly; and that not only from the Retraction of the *Urachus*, but by the Constriction attending these Arteries by the great Extension of the Umbilical ones, from which they have their Rise; whereby may be denied that Plenty of influent Blood; but this we leave to future Observation. As these Arteries pass towards the Penis, they send forth two or three Branches on each Side, the two inferior of which run to the *Musculi Directores Penis*: The two superior administer Blood to the adjacent Parts, particularly to the *Musculi Elevatores Ani*, between which, and the *Marfupiales Femorum*, these great Trunks pass; but, marching over the Cavernous Bodies of the Penis, they are both subdivided into two large Branches, the two inferior of which pass to the Bulb of the Cavernous Bodies of the Urethra; but the two superior are both subdivided again, the external running on the superior Surface of the Cavernous Bodies of the Penis; the internal, entering the Capsulæ, pass through the Middle of each Cavernous Body; wherein they divide themselves into innumerable Branches, from whose Capillary Extremities are continued so many Veins, in the Canals of which are divers Apertures into as many Cells, which communicate with each other, and empty themselves into the larger venous Ducts running on the superior Surface of the Penis, some of which join with those of the Prepuce; others make one large Trunk, which we call *Vena ipsius Penis*, marching on the *Dorsum Penis*, immediately under the Ligament that ties the *Offa Pubis* together internally, whereby it is compress'd in Erection; but, proceeding farther on the Prostate, it is there bifurcated, and enters the *Rami Iliaci Interni*, on each Side. The Veins which arise (in like manner) from the *Corpus Cavernosum Urethrae*, pass from its Bulb through the *Musculi Acceleratores*, whereby they are compress'd when those Muscles are in Action.

The Nerves that belong to this Part, are derived from the Trunk, composed by the Coalescence of the Third of the *Os Sacrum*, and a Branch remitted from the great Crural Nerve; which, after their Union, provide Nerves for Testes, Perinæum, and Muscles of this Part, ascending on the Cavernous Bodies of the Penis, and, expanding themselves on its superior Surface, are distributed to all its Parts. Its Lympheducts we mention'd in describing its external Integuments: Wherefore we proceed, next, to its Cavernous Bodies.

The *Corpora Cavernosa Penis*, by *De Graaf* called *Nervosa*, by others *Nervosa Spongiosa*, are two Capsulæ, or oblong Folliculi, every-where outwardly sens'd with a thick Membrane, by *Vesalius* and *Columbus* suppos'd to be like Ligaments, whose external Surface is cover'd with Nerves and Blood-vessels. They spring with two distinct Originals from the lower Side of the *Offa Pubis*; whence, stretching forwards, they meet each other, leaving an Interstice before their Conjunction, in which the Urethra is convey'd, where they leave the *Offa Pubis*; they are each cover'd with a Membrane, and are afterwards joined to each other by the Intervention of a *Septum intermedium*, which, the nearer it approaches the Glans, is more diminished; and, before it arrives to the Middle of the Penis, its Fibres ascend from the Urethra to the *Dorsum Penis* like the Teeth of a Comb, as *De Graaf* has well observ'd; but is not obliterated, and the two Cavernous Bodies united near the Glans, as he would persuade us; but, on the contrary, rather grows thicker



thicker and narrower, as *Ruyfch* has well observed. In Inflation the Wind, I confess, may sometimes pass from the Cavernous Bodies of the Penis to that of the Urethra, which yet will not always happen; which Communication depends on the Mediation of their Blood-vessels, as our last-named Author also takes notice. Anatomists differ concerning the internal Construction of these Cavernous Bodies: *Vesalius* accuses *Galen* for his Inadvertency herein. *Columbus* first observ'd their Arteries, which, proceeding strait to their Extremities, disperse themselves into innumerable Branches; which escaped the Observations of former Anatomists, as he writes. Dr. *Wharton* imagines they are partly composed of glandulous Flesh; others conceive they are intertext with divers Nerves, from whence the Name of *Nervosa* was first imposed on them. *Diemerbraeck* supposes they are not a mere Texture of Vessels intricately interwoven in the manner of a Net, as *Baubine*, *Riolan*, and *Veslingius*, imagine; but their Substance is fibrous, fungous, and cavernous, like the Lungs, receiving into their hollow Interstices Blood and Spirits, from the Vessels that are dispersed through their Substance. the Inquiries I have made inform me, that there is a great Analogy between the Structure of this, and that of the Spleen, which *Columbus* also remarks; in both which the Sides of the Veins have large Apertures, or Cells, which most plainly appear in the Bulbus of a Dog's Penis; but, in an human one, they are here much less, and larger in the Spleen, and also open into each other: Wherefore, when the reflux Blood is stop'd, the Penis becomes equally distended thereby, and it is driven forwards towards the Glans, when its Muscles contract.

Under these Cavernous Bodies of the Penis lies the Urethra, which has also its *Corpus Cavernosum*, differing very much in Figure from that of the two former, they being less at each End, and largest in the Middle; whereas this, on the contrary, is there least, and largest at its two Extremes; neither is its proper Tegument so dense. The superior Part of it, lying between the two Crura of the former, we call, from its Figure, *Bulbus*, which is cover'd with the *Musculus Accelerator Urinae*. It possesses the lower Part of the Urethra, extending itself in the Perinaeum; and is divided in cutting for the Stone, in which Operation Caution ought to be had to its Arteries, which enter that Part of the Bulb towards the Anus laterally. It has, also, a *Septum intermedium*, (though not hitherto taken notice of by Anatomists) dividing the Right Side of the Bulbus from the Left, which, descending to the End of the bulbous Part, is there obliterated. The Office of this Septum, we conceive, is to direct the reflux Blood to the exporting Duets, its two Veins mentioned before. As this *Corpus Cavernosum* descends on the inferior Part of the Urethra, it is lessened; but, when it approaches the Extremities of the two former, it again dilates itself, and covers them, composing that Body which we call *Glans*, or *Balanus*, which *De Graaf* had mistaken for fleshy Substance distinct from either. This *Ruyfch* has well described and figured in his above-mentioned Century of Observations. Its Cells in the Glans are much less than those of the former; but towards its superior Part, or Bulbus, they equal them. Having already described the Muscles of this Part, we shall proceed to give an Account how it becomes erected.

*Galen*, and the former Anatomists, not knowing the Circulation of the Blood, or that it pass from the Arteries into the Veins, were extremely deceived in their Ideas of the Erection of the Penis. *Columbus*, who has given an almost complete Description of that grand Work, still conceiveth the Arteries of this Part pour out Spirits with great Force into it, by which means it is extended. *Casspar Baubine* supposes, in a Venereal Appetite, the Blood and Spirits flow into this Part in great Plenty; and, being fill'd, like a Gut, with Wind, it begins to swell, and grows hard, which he imagines is done by a Sphincter Muscle constringing the Neck of the Bladder, and Roots of its Cavernous Bodies. Dr. *Graaf* assigns two Kinds of Vessels, with its Muscles, for the Performance of this Office: The Nerves, by which the animal Spirits flow into its membranous Parts, and render them more rigid and tumid; and the Arteries carrying Blood to distend the *Corpora Cavernosa*: "For, as he reasons, we are firmly persuaded the principal Extension of the Penis is from Blood; first, by injecting Water into its *Corpora Cavernosa*, by its Arteries, in a dead Body, we see it extended to the same Dimensions as when the Animal was living: Secondly, in firmly tying a Dog's Penis in Coitu, and afterwards examining it, we find nothing but Blood to distend it." To which may be added, that in Criminals which hang long after Death, this Part becomes erected, the Blood in that Position of the Body falling to the inferior Parts: And, by inflating the Blood-vessels of a dead Animal, it will also erect; which we first practised in a human Body, by inserting a Blow-pipe into the *Vena Saphena*, whereby it was not only erected, but afforded a Prospect of the external Disposition of its Blood-vessels, particularly its Veins, which

suggested to us a Contrivance in Nature in this Action, which has hitherto escaped the Reflection of Anatomists. *De Graaf*, not considering the Use of the adjacent Parts, assigns its Erection to its Muscles; imagining that, by the Intumescence of their Bellies, they not only compress the *Corpora Cavernosa*, and drive the contained Blood towards the Glans, but likewise the Passages through which it ordinarily flows back; which latter we can by no means admit in the Cavernous Bodies of the Penis itself, since the *Musculi erigentes* are so remote from their great Vein. Our Hypothesis, founded upon the Observation above-mentioned, and compared with the Structure and Situation of its Parts, is as follows: The Penis is approximated to the *Offa Pubis*, when those Muscles act, by means of the *Ligamentum Suspensorium*; whereby the Blood is not only driven forward towards the Glans in greater Plenty, and its Veins distended; but their great Trunks, running over the *Dorsum Penis*, are compress'd as they march close under the *Ligamentum Transversum* of the *Offa Pubis*. The like cannot happen in the Cavernous Body of the Urethra, since there is no Bone whose Position can have that Effect upon its Veins, as the *Offa Pubis* have upon those of the Penis itself: Wherefore the *Musculi Acceleratores*, compressing those of its Bulb, do that Office: Hence it happens, in an imperfect Erection, the Glans is not equally extended with the Penis itself, and, at other times, is soonest relax'd; but, when Muscles act, the Blood contained in the Bulb is driven forwards towards the Glans, whereby it becomes more extended: So in a Piece of Gut, which if fill'd with Water, or Wind, and either End compress'd, the opposite being tied, we shall see it strut out, and be more distended, as *De Graaf* instances after *Casspar Baubine*. The Blood, thus hinder'd in its Return, distends the Cavernous Bodies, which is thereby erected; the Arteries which before were flaccid, having then their Trunks also extended, do more plentifully import Blood into this Part: But since it is absolutely necessary some Part of the detained Blood should be still passing off, lest it become grumous, and unfit for a Reflux; to this End, the *Vena Praeputii* are joined to those of the Penis itself, as above noted, and are placed under the Skin only; and, running over the *Offa Pubis*, carry off Part of the impel'd Blood to give way to a fresh Supply from the Arteries, and preserve the Circulation uninterrupted. I remember, once, in an obstinate Priapisma, which would not yield to ordinary repeated Phlebotomy, I opened the Vein of the Penis itself, not without the expected Success, it immediately losing its troublesome Rigidity, by which I was confirm'd in my Conjecture.

This elegant Contrivance in disposing these exporting, sanguiferous Duets, that some are liable to be compress'd, while others remain altogether free, is not only observable in the Penis of Men, and Clitoris of Women, but in that of all Animals which have hitherto fell under our Examination, as well as in the Pudenda of all Females; and is, indeed, an Artifice that deserves our Admiration.

PENNA. A Feather. It, also, signifies a submarine Plant, which grows upon the Rocks, resembling a Bird's Wing. It is call'd, likewise, *Mentula Alata*.

PENO-ABSOU. An American Tree, the Bark of which is very fragrant. The Fruit is about the Size of an Orange, and contains six, and sometimes ten Nuts, of the Size of an Almond; which are each furnish'd with a Kernel, or small Almond, from which an Oil is drawn by Expression. This Fruit is poisonous. The Oil is said to cure the Wounds made by Arrows, and other Wounds, if apply'd thereto.

PENTADACTYLON. A Name for the *Palma Christi*. *Blancard*.

PENTAMOERON. The Name of an Ointment describ'd by *Aetius*, *Tetrabib.* 3. *Serm.* 4. *C.* 44. It consists of Styrax, Mastich, Wax, Opobalsamum, and Ointment of Nard. This is, also, describ'd by *Paulus Aegineta*, *L.* 7. *C.* 20. under the Title of *Pentamyron*.

PENTAMYRON. See PENTAMOERON.

PENTANEURON. A Name for the *Plantago*; *angustifolia*; *major*.

PENTAPHARMACUM. A Medicine consisting of five Ingredients. It was, also, the Name of a favorite Aliment of the Emperor *Adrian*, as *Aelius Spartianus* informs us, which consisted of the *Summ*, or Udder of a Sow, a Peacock, Ham, a sort of Paste or Cake, and Brawn; the five Ingredients from which it acquir'd the Name.

PENTAPHYLLOIDES.

The Characters are;

It agrees, in every thing, with the Cinquefoil, only the Leaves are not radiated to one Centre, but rather dispos'd in the Form of Alae, or pennated; and terminate in an odd Lobe.

*Boerhaave* mentions nine Species of *Pentaphylloides*, which are,

1. *Pentaphylloides*; *palustre*; *rubrum*. *T.* 298. *Quinquifolium palustre rubrum*. *C. B. P.* 326.

2. Pen-



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2. Pentaphylloides ; majus erectum ; flore luteo ; ternis foliis, Fragariæ instar hirsutis. *M. H. 2. 193. Fragaria, Pentaphylli fructu.* M. H. Bælf.

3. Pentaphylloides ; Ulmarie facie. *M. H. Blaf. 291. Quinquesolium fragiferum.* C. B. P. 326.

4. Pentaphylloides ; rectum ; fruticosum ; Eboracense. *M. H. 2. 193.*

5. Pentaphylloides ; argenteum ; alatum ; seu Potentilla. *Tourn. Inst. 298. Boer. Ind. A. 41. Argentina, Potentilla, Anserina.* Offic. *Argentina.* Ger. 841. Emac. 993. Raii Hist. 1. 617. *Potentilla.* C. B. P. 321. Park. Theat. 593. *Potentilla seu Argentina.* J. B. 2. 398. *Pentaphylloides, Argentina dicta.* Raii Synop. 3. 256. WILD TANSEY. Dale.

This is a low Plant, which never arises up to the Stalk, but creeps upon the Ground, emitting Fibres from the Joints, by which it roots in the Earth, and spreads very much ; the Leaves are made up of several Pinnæ set opposite ; each being about an Inch long, and not half so broad, serrated about the Edges, and having several small Pieces among them like Agrimony, cover'd over with a shining silver-colour'd Down : The Flowers grow at the Joints, on long foot-stalks, of five yellow Leaves like Cinquefoil. The Root is slender, with many Fibres of a dark-brown Colour. It grows in moist barren Places, and where Water has stood, all the Winter, flowering in May.

The Leaves only are used, and are accounted restraining and vulnerary ; good to stop all Kinds of Fluxes, and preternatural Evacuations, to dissolve coagulated Blood, to help those who are bruised by Falls : Outwardly, it is used as a Cosmetic, to take off Freckles, Sun-burn, Morpew, as, also, in restraining Gargarisms. *Miller's Bot. Off.*

This Plant is of an herby Taste, a little saltish, but styptic ; it gives a very deep Tincture of Red to the blue Paper ; which makes us conjecture, that the acid Part of the natural Salt of the Earth, filtrating itself through the Texture of this Plant, produces there, with the Earth, a kind of Salt very aluminous, united with a little Sulphur.

All Authors agree, that the wild Tansey is astringent, vulnerary, and deterfive. They infuse it a whole Night in Wine : They drink it after the manner of Tea : They prescribe it in Ptisins, and Broths, for the Looseness, Bloody-flux and Hæmorrhages. I have seen it have wonderful Effects upon the Whites, especially if seven or eight Cray-fish are added to each Decoction of wild Tansey. It abates the Inflammation of the Kidneys and Bladder, and tempers the Heat of Urine. Its distilled Water is good for the Blearedness and Ulcers of the Eyes ; for Tanning and Redness of the Face. *Martyn's Tournefort.*

It is moderately refrigerant, but more powerfully astringent, drying and binding ; whence it is good for an Hæmoptoe, Diarrhœa, and other Fluxes of the Belly and Uterus : It is, also, an excellent Lithontriptic, and very serviceable in the Cure of Wounds and Ulcers. Externally, it is much in Use for the Tooth-ach, putrid Gums, and for mitigating the Heat in Fevers ; for which Purpose it is of great Efficacy, being bruised, and apply'd to the Soles of the Feet, or to the Wrists. The Women in England use the distilled Water as a Remedy for Itch, Freckles, Sun-burns, and other cutaneous Defections. In Yorkshire, about a Town call'd *Settle*, it is customary for the Boys to dig up the Roots, which they call *Moors*, and eat them, for they are of a sweet Taste, and as grateful as a Parsnep, as I have been credibly assured, says Ray, by an Apothecary who lived in those Parts. *J. Agricola*, by a remarkable Experiment, found the Juice of this Herb, with the Powder of the common *Colchicum*, to be a Cure for the Disease of the Anus, called the *Marissee*. *Caster Durantes* advises to put it in the Shoes of those who labour under a Dysentery, and assures us, that not only the Dysentery, but all preternatural Fluxes of the lower Belly, as well as an immoderate Flux of the Menfes, and even an Hæmorrhage, at the Nose may be cur'd by the same Experiment ; *Sim. Paulus.* *Hartman* affirms, that this Remedy was effectual in a Dysentery which had eluded the Prescriptions of Physicians : And the same is the celebrated Arcanum of *Petr. Borellius*, *Cent. 1. Obs. 12.*

Diuretics are sometimes beneficial in Fevers, among which *Anserina* is specifically adapted to such a Purpose ; and so is the Salt of *Anserina*, which I regard as a Specific. *D. Soame* from *Doleus.* *Raii H. P.*

6. Pentaphylloides ; supinum. *J. B. 2. 398. Quinquesolium fragifero affinis.* C. B. P. 326. *Fragaria, vesca.* Ger.

7. Pentaphylloides ; orientale ; erectum ; Pimpinellæ folio, & facie. *T. Cor. 21.*

8. Pentaphylloides ; Canadensis ; folio Agrimonie. *Saracen.*

9. Pentaphylloides ; erectum. *J. B. 2. 398. Boerb. Ind. alt. Plant.*

The fifth Species is most commended, and has its Names *Argentina* and *Potentilla* from its noble and potent Effects. It

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is endu'd with the Virtues of the *Peruvian* Bark ; for if the Herb be bruised, and the express'd Juice taken an Hour before the Paroxysm of an intermittent Fever, it removes it with one or two Doses, if the Disease be of a kindly Sort, as well as the Bark. If there be any Malignity in the Fever, it is externally apply'd ; if an Ulcer or Wound bleed excessively, being apply'd in the Form of a Cataplasim, it rarely fails of answering the Purpose. Internally, it is of Service in all Diseases which consist in Openings of the Vessels, and Evacuations of the Liquids ; whence it cures the Dysentery, which has its Original from Liquids. Outwardly, it is consider'd, also, as an Antiphlogistic : If any one has his Feet inflamed with too much Walking, this Plant, apply'd thereto, cures him. If Infants have their Ears oppress'd with Sordes, the Remedy is the bruised Leaves of this Herb mix'd with a little Ceruss. There is prepar'd a Conserve of this Herb, which is well worth the keeping, but the distilled Water is of no Use. The Seeds and Root are astringent, for which Reason they cure the Diarrhœa and Hæmorrhages. A Decoction of the Plant, with River-crabs, is a very good Remedy in the Fluxor albus ; and the Seeds have the same Effect in an immoderate Flux of the Menfes, and an Inflammation of the Bladder. *Hist. Plant. adscript. Boerb.*

PENTAPHYLLUM. A Name for several Species of *Quinquesolium* and *Pentaphylloides*.

PENTAPHYLLUM PEREGRINUM. A Name for the *Sinapisrum* ; *Lusitanicum* ; *triphyllum* ; *flore rubro* ; *siliquis corniculatis*.

PENTAPLEURUM. A Name for the *Plantago* ; *angustifolia* ; *major*.

PENTATHETON. The Name of a Plaister describ'd by *Oribasius*, *Synop. L. 3.* and mention'd by *Actius* and *Asuarius*.

PENTOROBUS. Peony. *Actius, Tetrabib. 1. Serm. 1.*

PEPASMOS, πεπασμός, or PEPANSIS, πέπασσις. Concoction. See COCTIO.

PEPASTICA. Digestive Medicines. *Blancard.*

PEPITAS DEL PERU. The Name of a *Peruvian* Fruit, to which I find no Virtues ascrib'd.

PEPLION, PEPLIS, πέπλιον, πέπλις, were Medicines much of the same Kind and Quality, and prescrib'd by the ancient Physicians as Cathartics for evacuating the Body of Bile and Phlegm. This is evident from *Dioscorides*, *Ruffus Ephesus* in his Fragment of Cathartics, and *Asuarius*, who says, also, that those Medicines, after evacuating black Bile and Phlegm, expel Flatulencies, especially such as give Rise to Melancholy ; and even that they cure Inflations of the Spleen, Uterus, and larger Intestines. *Hippocrates* usually prescribes *Peplium* as a Purge for black Bile, which, as *Galen* says, it evacuates, as well as black Hellebore, and is more effectual in expelling Flatulencies. It is prescribed also, by *Hippocrates*, as a Purge in an Erysipelas of the Lungs, and the first Appearance of a Consumption. The *Peplis*, *Lib. 2. Epid.* was order'd to be taken by *Scopus* afflicted with a Swelling of the Spleen, and a great Distention of the Hypochondria, and lower Parts of the Belly, from Flatulencies ; and, *Lib. de Superfæt.* it is recommended for mollifying the Orifice of the Uterus. In 7 *Epid.* the *Peplis* is prescribed under the Name of *Meconium*, μεκόνιον, as a Purge for Bile and Phlegm, as, also, *Lib. de R. V. I. A.* And, in the Book *de Mulier. Morbis*, it is recommended under the Names of *Mecon*, *Meconium*, and *Meconis*. *Peplium*, in *Galen's* Exegesis, is expounded to be the same with what is, also, called *Peplis*, and wild *Andrachne*, which Names are taken from *Dioscorides*, *Lib. 4. Cap. 169.* We find, in the same Exegesis, the *Peplis* to be the same with what is called, also, *Chamaesyce*, *Papaver Spumeum*, and *Meconium*, which *Pliny* also writes, *Lib. 27. Cap. 12.* *Erotian* says, that *Peplis* is a kind of Herb which some call *Peplion*, and others *Symphytum*. *Foesius.*

*Hippocrates* used to add *Peplium* to black Hellebore, but it is not certain what Kind of Plant it was : Many refer it to the *Esula*, and *Matthioli* assures us, that there is, at this Day, in Italy, a Species of *Esula*, which they call *Pepla*, or *Pepla*. Because *Hippocrates*, in some Places, gives it the Name of *Meconis*, *Dioscorides* seems to call it *Papaver spumeum*, tho' the Marks he there gives of it leave us at an Uncertainty to what Species of the *Papaver* we are to apply the Name of *Peplion*. It is a Question whether it be not the *Papaver album* of *Hippocrates*, because it is reckon'd by him as a Purgative ; and this, indeed, seems probable, because there is a Species of *Papaver*, which *Pliny* says is called *Tithymalus*. *Schultzii Hist. Med.*

PEPLIS. A Name for the *Tithymalus* ; *annuus* ; *erectus* ; *folio oblongo, acuminato*.

PEPLUS. A Name for the *Tithymalus* ; *rotundis foliis, non crenatis*.

PEPLYMENON. The Name of a Cerate mentioned by *Celsus*, *Lib. 5. Cap. 18.*

PEPO.



# P E R

## PEPO.

The Characters are ;

The Flower consists of one Leaf, which is Bell-shap'd, expanded at the Top, and cut into several Segments: Of these Flowers, some are male, and some are female, as in the Cucumbers and Melons. The female Flowers grow upon the Top of the Embryo, which afterwards becomes an oblong, or round, fleshy Fruit, having sometimes an hard, rugged, or uneven Rind, with Knobs and Furrows; and is often divided into three Parts, inclosing flat Seeds, that are edged, or rimmed about, as it were, with a Ring, and fix'd to a spongy Placenta.

*Boerhaave* mentions fifteen Species of *Pepo*; none of which have any particular Medicinal Virtues ascrib'd to them, except the first; which is,

*Pepo*; oblongus. *C. B. P.* 311. *Raii Hist.* 1. 641. *Tourn. Inst.* 115. *Boerb. Ind. A.* 2. 78. *Pepo*. *Offic. Park.* *Parad.* 526. *Pepo maximus oblongus.* *Ger.* 773. *Emac.* 919. COMMON POMPION, or MELON.

The POMPION takes up a great Compass of Ground, with its large, thick, creeping Stalks, furnish'd with large Claspers; its Leaves are very large and rough, in Shape like those of Melons. The Flowers are large, in Shape and Colour like a yellow Lily. The Fruit is of a great Bigness, having large, white, oval, flatish Seed. The POMPION is sown in Dunghills, being ripe in *September* and *October*; it is rarely used in Physic.

The Seed is cooling, and of the Nature of the Melon, and other cold Seeds; and may serve very well to make Emulsions. *Miller's Bot. Off.*

All the Kinds of Pompions are cooling, moistening, allay sharp Humours, and quench Thirst.

They are hard to be digested, weaken the Stomach, and cause Wind and Colic.

Pompions contain much Phlegm, a middling Quantity of essential Salt, and a little Oil.

They agree in hot Weather with young, bilious People; but Persons of a cold and phlegmatic Constitution ought to abstain from them.

They usually mix the Pompions with some aromatic Herbs, such as Parsley, Onions, Mustard, Pepper, and several other sharp and volatile Things, fit to attenuate the viscous Phlegm of this Fruit in the Stomach.

They preserve Pompions with Sugar, in order to make them more pleasing to the Taste, and more wholesome. In short, they rarely their gross Substance by boiling them well; and besides, the Sugar, wherewith they are mix'd, gives them a little sort of pricking Quality, that makes them less insipid to the Taste, and more easy of Digestion. Preserv'd Pompions may be used in Distempers of the Breast, in order to allay the Sharpnesses that are there.

Pompions contain a great many Seeds, which are flat, oblong, cover'd with an hard Rind, that is a little woody, whitish or greyish. Under this, there is a small sweet and very pleasant Kernel, which contains a great deal of Oil, that may be easily press'd out of it; and is proper to soften the Skin, and make it more smooth. *Lemery on Foods.*

PEPTICOS, *πεπτικός*. Digestive, or promoting Digestion. It is used with respect to the Digestion of the Aliments, the Concoction of the Humours, or the Formation of Matter.

PEQUEA, or PEKIA. *Pison. l. De Laet.* The Name of an Indian Tree which bears a Fruit somewhat larger than an Orange, the Juice of which is extremely sweet and delicious, and esteem'd by the Europeans as good in Disorders of the Breast. *Raii Hist. Plant.*

PERAGU. *H. M.* The Name of a Shrub, which grows in *Malabar*. The Root, taken in acid Milk, or Wine, is said to be good for a Lientery, the Colic, and Gripes; and the Powder thereof is said to dry up Pustules. The Juice of the Leaves, taken internally, kills Worms of the Intestines. *Raii Hist. Plant.*

PERCA. *Offic. Schrod.* 5. 331. *Rondel. de Pisc.* 2. 196. *Mer. Pin.* 190. *Perca fluviatilis.* *Bellon. de Aquat.* 295. *Gesn. de Aquat.* 698. *Raii Ichth.* 291. *Ejusd. Synop. Pisc.* 97. *Salv. de Aquat.* 296. *Perca major.* *Charlt. de Pisc.* 41. *Jons. de Pisc.* 47. *Perca fluviatilis major.* *Aldrov. de Pisc.* 622. *Perca major* *Schonef. Ichth.* 55. THE PEARCH.

This Fish is very frequently found in Rivers; and the only Parts of it used for medicinal Purposes, are the Bones found in the Head near the Beginning of the Spina Dorfi, and in the Shops called *Lapides Percarum*; which, in Virtues, agree with the other testaceous Powders, and are used in dissolving the Stone, and cleansing the Kidneys. Externally they are, also, used in Dentifrices, and for drying Wounds. *Schrod. Dale.*

There are two Sorts of this Fish; the River and Sea-Pearch: The latter, in *Latin*, is called *Perca marina*, and is of a red-brown, or blackish Colour; it is smaller than the River Pearch: They find it near Rocks, where it preys upon smaller

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Fish: It is hard, like Leather, viscous, not easy of Digestion, and ill-tasted, according to *Rondeletius*: They do not use it for Food, and so we shall say no more of it here. The River Pearch is subdivided into two sorts, the great and small one; which are both of them excellent Victuals. You are to chuse those that are fat, well-fed, middle-aged, tender, yet firm and well-tasted; and they should be such as are caught in fine clear Rivers.

The Pearch is nourishing, produces good Juice, and easily digests.

It is pretended, that when this Fish is too fat and old, it has an ill Taste, and is hard of Digestion; they, also, say the same thing of that which breeds in Marshes, and muddy Places.

*Ausonius* reckons the Pearch of the Number of those Fishes that have a delicious Taste. It may be said, in general, that the Pearch has but few gross Humours; that it produces many good Effects, and but a few bad ones: And the Reason is, because this Fish lives generally, and out of Choice, in pure, clear, and rapid Waters, rather than in those that are muddy, and run slowly. Moreover, it feeds upon good Food, and is very active, which, also, contributes to make it more delicious and wholesome. It is nourishing, and affords good Food, because it contains many balsamic Parts, and most pure Juice. It is, also, easy of Digestion, when middle-aged; for then 'tis of a middling Consistence: When, on the contrary, 'tis too young, or too old, 'tis soft and viscous, or else hard, like Leather. *Lemery on Foods.*

## PERCEPIER.

The Characters are ;

The Calyx is quadrifid; the Flower is produced in the *Axe* of the Leaves; the Seeds are produced single in each Seed-vessel, which is formed by the Calyx.

*Boerhaave* mentions but one Sort of *Percepier*; which is,

*Percepier Anglorum*, quibusdam. *J. B.* 3. 74. *Boerb. Ind. A.* 2. 93. *Percepier*. *Offic. Percepier Anglorum.* *Ger. Emac.* 1594. *Raii Hist.* 1. 209. *Synop.* 67. *Polygonum Scelinoides.* *Park.* 448. *Charophylla nonnihil similis.* *C. B. P.* 152. *Alchimilla montana minima.* *Tourn. Inst.* 508. PARSLEY-PIERT.

This is a small low Plant, lying generally upon the Ground, whose round hairy Branches are seldom an Hand-breadth long; they are full of small Leaves, set alternately at the Joints, a little hairy, narrow at the Stalk, and broadest at the Ends, cut into three round Sections; the Flowers are small, and staminate, growing in Clusters at the Joints, among the Leaves; they consist of four Leaves, and are succeeded by small round Seeds. The Root is full of Fibres. It grows in dry Places, and in fallow Fields, as, also, among Corn.

Parsley-piert is not an officinal Plant, and is seldom prescribed by Physicians; but the Vulgar have a great Opinion of it, as a Breaker or Bringer away of the Stone and Gravel, and a Provoker of Urine; and it is given by them for that Purpose, either in Powder, or a Decoction of it in White-wine. *Miller's Bot. Off.*

It is said to be a very speedy, as well as potent Provoker of Urine, and to break the Stone: It is eaten raw, as a Green; and is, also, preserved in Pickle. The distilled Water of this Plant is very useful. *Raii H. P.*

PERCEPIOLUM. An approved or tried Remedy for a Disease. *Dorn. Dist. Paracels.*

PERIDETUM, in *Paracelsus*, is the Root of Skirret.

PERDICUM. A Name for the *Parietaria*, Pellitory of the Wall.

PERDITIO sometimes imports a Miscarriage.

PERDIX. *Offic. Schrod.* 5. 323. *Perdix cinerea.* *Aldrov. Ornith.* 2. 140. *Jons. de Avib.* 46. *Charlt. Exer.* 83. *Will. Ornith.* 118. *Raii Ornith.* 166. *Ejusd. Synop. A.* 57. *Perdix minor fulva.* *Bellon. des Oyse.* 258. THE COMMON PARTRIDGE.

The Parts of this Animal, used for medicinal Purposes, are the Flesh, Marrow, Blood, Liver, Gall, and the Feathers. The Flesh, if eaten, augments the Quantity of Semen and Milk, and proves a Stimulus to Venery. The Marrow, as, also, the Brain, when drank in some proper Liquor, are said to afford Relief to those who labour under a Jaundice. The Gall is, by some, highly extolled in Disorders of the Eyes. The Blood is used as an Ointment for the Eyes, when they are Blood-shot, and in recent Wounds of them. The Liver, dried before the Fire, and reduced to a Powder, stops an Epilepsy; and is accounted an highly efficacious Medicine against Fevers, if frequently exhibited in Yarrow-water. *Crato.* The Feathers, used by way of Fumigation, and applied to the Nostrils, are beneficial in a Suffocation of the Uterus, as, also, for alleviating, mitigating, and removing Colics, and other Pains of a like Nature. *Schrod. Dale.*



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There are several sorts of Partridges, which ought to be chosen while they are young, tender, well-fed, and of a good Taste. When a Partridge is old, his Flesh is hard, like Leather, not easy of Digestion, and disagreeable to the Taste.

The Partridge, in all the Parts of it, contains much Oil, and volatile Salt.

It agrees, in cold Weather, with any Age and Constitution, but, more especially, with Persons recovering from Sickness, and those who are of a cold and phlegmatic Temper.

The Partridge's Flesh is firm, and full of viscous Moisture; and, for that Reason, 'tis very well tasted, good in Diarrhoeas, and for pituitous and phlegmatic People. The eating of Partridge increases Seed, is very nourishing, and wholesome for Persons recovering from Sickness; not only because it contains many oily and balsamic Parts, that are fit to unite with the solid Parts, and to restore them; but, also, by the Assistance received from its volatile Salts, which keep the Liquids in a just Fluidity, and increase the Animal Spirits.

A Partridge ought not to be eaten as soon as it is killed; but should, for some time, be exposed to the Air; for by that means its Flesh will grow more tender and short. *Leмери of Foods.*

PERDIX. Schw. A. 327. Gesn. de Avib. 606. *Perdix rufa*. Mer. Pin. 173. Charlt. Exerc. 83. Jonst. de Avib. 46. Aldrov. Ornith. 2. 139. Will. Ornith. 119. Raii Ornith. 176. Ejsld. Synop. A. 57. *Perdix major rufa*. Bellon. des Oyse. 256. THE RED-LEGGED PARTRIDGE.

It agrees in Virtue with the preceding.

There is, besides, another Species of Partridge, called

PERDIX ALBA, or LAGOPUS: This is a Bird whose Legs are hairy, and resemble those of an Hare; there are two Species of it, one as large as a Pigeon, cover'd with Feathers as white as Snow, except those of the Tail, which are variegated with some black Spots: Its Beak and Feet are, also, of a blackish Colour.

The other Species resembles a Quail; but is larger, and covered with Feathers, partly white, and partly of a yellow Saffron-colour.

Both Species are found in the Alps, and Pyrenean Mountains, and delight in Snow. They are excellent Food, and contain a large Quantity of volatile Salt, and Oil. They are, also, of a restorative and corroborating Quality. *Leмери des Drogues.*

PERDIX MARINA is the Sole. See SOLEA.

PERDONIUM. Wine medicated with Herbs. *Dorn. Diet. Paracels.*

PERELLE. A sort of scaly Earth, brought from St. Tour in Auvergne. *Leмери des Drogues.*

PERESKIA.

The Characters are;

It hath a Rose-shaped Flower, consisting of several Leaves, which are placed orbicularly, whose Cup, afterward, becomes a soft fleshy globular Fruit, beset with Leaves; in the middle of the Fruit, are many flat roundish Seeds, included in a Mucilage.

*Miller* mentions but one Species of *Pereeskia*; which is, *Pereeskia aculeata*, flore albo, fructu flavescente. *Plum. Nov. Gen.*

This Plant grows in some Parts of the Spanish West-Indies, from whence it was brought to the English Settlements in America, where it is called a Gooseberry; and, by the Dutch, it is called *Blad-apple*. *Miller's Dictionary*, Vol. 2.

PERETERION. The perforating Part of the Trepan.

PERFOLIATA.

*Boerhaave* mentions three Species of *Perfoliata*; which are, 1. *Perfoliata*, vulgarissima, five arvensis. *C. B. P.* 277. *Boerb. Ind. A.* 72. *Perfoliata*. *Offic. Perfoliata vulgaris*, Ger. 430. *Emac.* 556. *Raii Hist.* 1. 470. *Park. Theat.* 580. *Perfoliata simpliciter dicta, vulgaris, annua*. *J. B.* 3. 198. *Bupleurum perfoliatum rotundifolium annuum*. *Tourn. Inst.* 310. *Raii Synop.* 3. 221. THOROW-WAX.

Thorow-wax has a small, fibrous, sticky Root; from which spring smooth, and frequently redish Stalks. The Leaves are of a bluish-green Colour, of an oval Shape; smooth, and not indented about the Edges; full of Nerves, which run obliquely from the Centre to the Circumference of the Leaf: They are perforated by the Stalk, which runs through them, and is divided towards the Top into several Branches, at the Ends of which grow small Umbels of yellow Flowers, usually five together upon one Stalk, with as many small Leaves under each Umbel; the three outermost being the largest: Each Flower is succeeded by two oblong striated Seeds. It grows only among the Corn, and flowers in June and July. The whole Plant is used.

Thorow-wax is reckoned among the vulnerary Plants, and is especially serviceable in green Wounds, Bruises, Ruptures,

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Contusions, as also, for old Ulcers and Sores, either given in Powder, or the Decoction. *Miller's Bot. Off.*

It is reckoned among Plants of a consolidating and conglutinating Quality. The Decoction of the Herb in Wine, or the Powder of the Leaves, is exhibited for the Cure of internal Affections, as Ruptures, or Bruises by Falls. It is much recommended in Hernias, especially of Children, and particularly, according to *Schroder*, an umbilical Hernia, whether taken inwardly, or fresh bruised, and applied outwardly, in a Cataplasm, with Wine and Flour; in the same manner it resolves strumous Swellings. *Schwenckfeld* affirms, that it is of great Efficacy in Fractures, Hernias, and the Erysipelas.

The following Prescription, says *S. Paullus*, is a sovereign consolidating Remedy for the *Exomphalon*, or Prominence of the Navel: Take *Perfoliata*, Root and all, one Handful, Mouse-ear, Rupturewort, Plaintain, Moss, *English Acacia*, of each half an Handful: Boil them in a sufficient Quantity of red Wine, and apply them to the Place affected. *Raii H. P.*

2. *Perfoliata*, annua, longioribus foliis. *J. B.* 3. 198. *M. H.* 3. 290. *Bupleurum perfoliatum, longifolium, annuum*. *T.* 310.

3. *Perfoliata*, montana, latifolia. *C. B. P.* 277. *Bupleurum montanum latifolium*. *T.* 310. *Boerb. Ind. alt. Pant. Vol.* 1.

PERFORANS MANUS. The Name of a Muscle of the Fingers.

This Muscle is very like the *Perforatus*, or *Sublimis*, and it is situated much in the same manner; only it lies lower, and is covered by the *Perforatus*. It is composed of four Muscles, which at first seem to make but one Mass, and afterwards terminate in four Tendons.

The fleshy Portions of the first and largest, and, also, of the second, are fixed in the superior Parts of the Ulna, and interosseous Ligament, down to their Middle; the fleshy Portion of the third is joined to the Tendon of the *Ulnaris Internus*, by a sort of common Aponeurosis; and that of the fourth is fixed along the Ulna.

The four Tendons have often several small collateral Tendons, sometimes five in Number, united to the Tendons of the neighbouring Muscle, as they pass under the large annular Ligament of the Carpus; but the Tendons themselves are separated from the others by thin Septa, which form a kind of particular Rings. Being thus strengthened, they separate, and, running along the Palm of the Hand, in distinct membranous Vaginae, like those of the *Perforatus*, by which they are covered, they enter the ligamentary Vaginae of the first Phalanges, together with the former; and, having passed through the Fissures thereof, and through the ligamentary Vaginae of the second Phalanges, they are inserted in the flat inner Side of the third, near the Basis.

The ligamentary Vaginae of the second Phalanges appear sometimes stronger near the Bases, near the Heads of the Bones.

The *Perforans* bends particularly the third Phalanges, in which it is inserted; and by the same Motion it may likewise bend the first and second Phalanges. We may apply to this Muscle all that is said concerning the tendinous Septa in the *Perforatus*, and concerning its Action, which is sometimes common to all the four subaltern Muscles, sometimes peculiar to one or more of them.

It may, likewise, be esteemed an Assistant to the *Ulnaris* and *Radialis Interni*, in great Efforts; and these Muscles may reciprocally be looked upon as Assistants to the *Perforatus* and *Perforans*.

Each of these four Tendons passes under a distinct annular Ligament, as under a Pulley; for, having accompanied that of the *Perforatus* through the great Ligament of the Carpus, through the Furca of the Aponeurosis Palmaris, and through the ligamentary Vaginae of the first Phalanx, and having passed through the Slits of the *Perforatus*, it leaves this Tendon, and continues its Course to the third Phalanx through the ligamentary Vagina of the second.

In its Passage through the Slit of the *Perforatus*, it is liable to no Compression, even in the most violent Efforts of that Muscle. The reciprocal Contortions of the two flat Portions of the Fissure, and their crucial Insertion in the flat Side of the third Phalanx, hinder the little oblique Grooves, mentioned in the Description, from closing, and the two lateral Portions of the Fissure, from coming together, even after the Tendon of the *Perforans* has been removed; and the more this Part of the Tendon is pulled, the more perfectly does the Fissure form a sort of a Channel with solid Sides, and with the two Ends cut obliquely.

Without such an artful Structure as this, the Tendon of the *Perforans* would have been continually exposed to Compressions and Contusions by the Sides of an ordinary Fissure; and, without passing through the Tendon of the *Perforatus*, it could not have been inserted in the middle of



of the flat Side of the third Phalanx, but near one of the Edges.

In the Insertion of these two Tendons in the Phalanges, we may observe still a farther Contrivance. This Insertion is angular in both, that is, the Extremities of the Tendons are not inserted according to their Breadth, in a transverse Line; but the Sides of their Breadth make an Angle with the Middle.

#### PERFORANS PEDIS, SIVE FLEXOR DIGITORUM LONGUS.

This is a long Muscle, fleshy above, and tendinous below; lying on the back Side of the Leg, between the Tibia and the Flexor Pollicis longus, covered by the Soleus, and covering the Tibialis posterior.

It is fixed, above, by fleshy Fibres, to a little more than the Middle third Part of the back Side of the Tibia, near its external Angle, below the Insertion of the Soleus; and, also, to a kind of Ligament, which runs down from the Middle of the Tibia. It afterwards ends in a Tendon, which passes behind the inner Angle on one Side, and a little behind the Tibialis posterior, in a separate annular Ligament.

From thence it runs under the Sole of the Foot, sending off a Detachment, by which it communicates with the Flexor Pollicis longus. There it is divided into four small flat Tendons, which go to the third Phalanges of the four small Toes, in the same manner as the Perforans of the Hand.

These four Tendons agree, likewise, in this, with those of the Hand, that they give Insertions to the Lumbricales; but they differ from them in this, that before the Separation they are joined, laterally, by an auxiliary fleshy Body, which I name *Flexor Digitorum accessorius*.

The *Perforatus*, or *Flexor Digitorum brevis*, binds the second Phalanges; and the *Perforans*, or *Flexor longus*, the third; the Use of these Muscles being nearly the same with the *Perforatus* and *Perforans* of the Hand. *Winflow*.

PERFORATA. A Name for the *HYPERICUM*.

PERFORATIO. Sometimes signifies a *Seton*.

PERFORATUS MUSCULUS.

#### PERFORATUS MANUS, VULGO SUBLIMIS.

This Muscle is considerably large, lying along the Inside of the fore Arm, fleshy for the greatest Part near the Articulation of the fore Arm with the Os Humeri, and near the Carpus terminating in four distinct Portions, which become the same Number of long small Tendons. The Name of *Sublimis* has been given to it; because it lies almost on the Surface of the fore Arm; and that of *Perforatus*, from the Slits found near the Extremities of its Tendons.

It is commonly made up of four Muscles, closely united by their fleshy Portions, representing there one large Body of Muscles. It is fixed above to the superior internal Parts of the Ulna and Radius, (this last Bone being considered in its natural Situation) and to that of the interosseous Ligament. A little below the Middle of the fore Arm, this large fleshy Body is divided into four distinct Muscles, which, on the lowest Quarter of the fore Arm, end in four flat Tendons of different Sizes.

These four Tendons are inclosed in a common membranous, or mucilaginous Vagina, which, likewise, furnishes each Tendon with a particular thin Vagina. In this manner they advance to the Carpus, and pass under the large annular transverse Ligament: Beyond this Ligament, they spread again, in the Palm of the Hand, still retaining their particular Vagina, and run between the Aponeurosis Palmaris and Metacarpus, toward the Fingers, separating more and more by degrees. Sometimes there are at first only three Tendons, one of them being afterwards divided into two, in their Passage to the Fingers; sometimes they communicate, by a kind of Detachment, with the Tendons of the *Perforans*.

Having reached the Heads of the metacarpal Bones, they pass under the four Arches, or *Fræna*, formed by the *Fræna* of the Aponeurosis Palmaris, and particular Septa of the great transverse Ligament of the Palm of the Hand; and then each Tendon, having got beyond the Head of one metacarpal Bone, and beyond the Basis of the first Phalanx, enters the ligamentary Vagina, and the flat, or inner Side of that Phalanx; and is inserted in the flat Side of the second Phalanx, near its Basis, the membranous Vagina accompanying it to its Insertion. The ligamentary Vagina is stronger towards the Basis, than towards the Head of the first Phalanx.

In passing along the Inside of the first Phalanx, the Tendon is divided by a long Slit, which gives Passage to a Tendon of the *Perforans*, and from thence the Names of these two Muscles are taken.

This Fissure, or Opening, is contrived in a very singular manner: The Tendon is, first of all, divided in two flat Portions,

and each Portion is contorted on the flat Side of the Phalanx; so that the Edges, which were nearest, become opposite, and the opposite Edges are joined together all the Way to the Extremity of the Tendon. By this Contorsion, the Fissure seems to form two small oblique Grooves, which surround the Tendon in opposite Directions; one Groove being covered by the Tendon, and the other covering it.

This is not all: The two Portions, having formed this double Groove by their mutual Contorsion, are not united, only by simply approaching each other at their Extremities; for each Portion is at that Place again divided into two others, smaller and shorter than the former; so that, in all, there are four narrow Portions, the two nearest of which cross each other, and join the other two, so that from the four narrow ones are formed two broad Portions anew, which are joined by their Edges, and afterwards inserted in the Bone at a small Distance from each other.

The *Perforatus* serves to bend the second Phalanges of all the Fingers, except the Thumb; and the particular Muscles, of which it is made up, may act separately, by reason of their distinct Insertions in these Phalanges. The Union of the fleshy Bodies by intermediate tendinous Septa may have several Uses, the principal of which is, that these Septa, being very broad and thin, give Insertion to a great many fleshy Fibres in a very small Compass, and thereby supply the Place of four large Tendons, which would have taken up much more Room; but by this Union these four Muscles are more disposed to act jointly than separately.

They not only bend the second Phalanges on the first, but, also, the first on the metacarpal Bones, and the Metacarpus and Carpus on the fore Arm. To conceive the Mechanism and Force of these Muscles, which is very great, and necessary in certain Circumstances, it must be observed, that as, in the Muscles of the Scapula, every Muscle, which can move a Bone in any given Direction, is, likewise, able with the same Force to keep it immoveable in any Situation, against whatever tends to move it in a contrary Direction. The following Examples will sufficiently illustrate this Observation.

It is by bending the Fingers that we raise the greatest Weights, that Sailors pull large Oars, that Printers turn the Screws of their Presses, and that Climbers support their whole Bodies, even with an additional Burden upon them. It is by means of the Fingers, when bent, that we tear, pull up, bruise, and the like, things that require great Force to be so treated.

The Strength of Muscles depends on the Multitude of their fleshy Fibres, and the Extent of their Motions, on the Length of these Fibres; and, consequently, where-ever Strength is more necessary than large Degrees of Motion, there we find the Fibres of Muscles proportionably increased in Number; and, where-ever there is more Occasion for a large Degree of Motion than for Strength, the fleshy Fibres are of a proportionable Length.

In the *Perforatus* we meet with both these Contrivances, a great Number of Fibres for Strength of Motion, and a great Length of Fibres for Extent of Motion. The different tendinous Septa serve to give Insertions to a Number of moving Fibres, sufficient for the Strength required in the Cases already mentioned.

Large Degrees of Motion are, likewise, sometimes very necessary in this Muscle, as for Instance, when we bend the Fingers at the same time that the Metacarpus and Carpus are bent on the fore Arm; and, in this Case, certain Fasciculi of Fibres are chiefly employ'd, which appear to be longer than the rest.

The particular Use of the Tendons of this Muscle is best understood with that of the *Perforans Manus*.

#### PERFORATUS PEDIS, SIVE FLEXOR DIGITORUM BREVIS.

This is the undermost of all the common Muscles of the Toes, being situated immediately above the Aponeurosis Plantaris, which it resembles something in Figure; and hence we see, that it has been very improperly termed *Sublimis*.

It is fixed by fleshy Fibres to the anterior and lower Part of the great Tuberosity of the Os Calcis; and to the neighbouring Part of the upper Side of the Aponeurosis Plantaris.

From thence it runs forwards, being divided into four fleshy Portions, which terminate in the same Number of Tendons, split at their Extremities in the same manner as those of the *Sublimis*, or *Perforatus* of the Hand, and inserted in the second Phalanges of the four small Toes, a little nearer the Inside, than in the Hand. *Winflow*.

The Uses of this Muscle are mentioned under the *Perforans Pedis*.

PERFRICTIO. A great Shivering, or Coldness.

PERIAMMA, or PERIAPTOS, from περιπρω, to connect, or bind to. An Amulet.

#### PERIBLEPSIS,



PERIBLEPSIS, *περίβλεψις*, from *περιβλέπω*, to stare about. That kind of wild staring Look, and Instability of the Eyes, which is perceived in People labouring under a Delirium.

PERIBOLE, *περίβολη*, from *περιβάλλω*, to surround. In *Hippocrates, de decenti Habitu*, it signifies the Dress, Garb, or Cloathing of a Person. In other Places it imports a Translocation of the Humours, or morbid Matter, to the Surface of the Body. Thus, when a Disorder is relieved by a copious Eruption of Pustules, this is a *Peribole*, or Removal of the morbid Matter from the internal Parts to the Surface.

PERICARDIUM. See COR.

PERICARPIUM, *περικάρπιον*, from *περί*, about, and *καρπός*, Fruit. Whatever surrounds the Fruit of Vegetables, whether Membrane, Husk, or Pulp. Some restrain the Signification to the soft and moist Pulp, which covers the Seeds, as in Apples, Pears, and Peaches. But,

PERICARPIUM, from *περί*, and *καρπός*, the Wrist, imports a topical Medicine apply'd to the Wrist.

PERICHAREIA, *περιχαρεία*. An Excess of Joy, which has been sometimes known to produce sudden Death.

PERICHRISIS. A Liniment.

PERICLASIS, from *περί*, about, and *κλάω*, to break. A Fracture with a great Wound, wherein the Bone is laid bare.

PERICLYMENUM.

The Characters are ;

It has the Appearance of the Honeyfuckle. The Flower is monopetalous, resembles, in some measure, a Tube, and has its upper Part divided into several almost equal Segments. The Ovary has its Top adorned with a dentated Crown, and becomes a soft Berry, full of a compressed, roundish Seed.

*Boerhaave* mentions but one Sort of *Periclymenum*; which is, *Periclymenum*; *perfoliatum*; *Virginianum*; *sempervirens*, & *florens*. *H. L.* 484. 485. *J. & Desfer.* *Boerb. Ind. alt. Plant.*

There are no particular medicinal Virtues ascribed to this Plant at present, that I know of.

PERICLYMENUM is, also, a Name for several Sorts of *CAPRIPIUM*; which see.

PERICNEMIA, from *περί*, about, and *κνήμη*, the Tibia, or Leg. The Parts about the Tibia.

PERICRANIUM, *περικράνιον*. The Name of a Membrane, which covers the Bones of the Skull. See CAPUT.

PERIDROMOS. The extreme Circumference of the Hairs of the Head.

PERIESTECOS, *περιεσσηκός*, from *περιέσσω*, to surround, or guard. An Epithet for Diseases, Signs, or Symptoms, importing their being salutary, and that they prognosticate the Recovery of the Patient.

PERIGRAPHE, *περιγραφή*. An inaccurate Description, or Delineation. In *Hippocrates, de decenti Habitu*, it seems to import, a Characteristic. In *Jesaius*, *Perigraphæ* are certain white Lines and Impressions, observable in the *Musculus Rectus* of the *Abdomen*.

PERIN, *περίν*. A Testicle. Some explain it, the *Perineum*; others, the *Anus*.

PERINÆUM. The Space betwixt the *Anus* and Parts of Generation, divided into two equal lateral Parts, by a very distinct Line, which is longer in Males, than in Females. This Part is subject to Laceration in a difficult Birth. See OBSTETRICATIO. And in this Part an Operation is perform'd, call'd *The Puncture of the Perinæum*. See ISCHURIA.

But the principal Disorders to which this Part is subject, are Abscesses, and Fistulas.

#### A FISTULA OF THE PERINÆUM.

Sometimes, after the Operation of Lithotomy, or after a Puncture of the Perinæum or Bladder, or from an Abscess in the Perinæum near the Urethra, or from a Scirrhus in the Glandula Prostata, or when, by the bad Habit of the Patient, a Wound or Ulcer can by no means be healed, but its Lips become callous, a Fistula is formed, through which the Urine is preternaturally discharged with great Uneasiness to the Patient. These Fistulas are sometimes generated in the Perinæum by malignant Abscesses, which spread amongst the Fat under the Skin, to the Intestinum Rectum, and Scrotum, the Urethra remaining entire; but these cannot be called *Urinary Fistulas*, because no Urine is discharged by them. The urinary Fistulas are often occasioned by the Use of Tents, or Pipes, which have been too long retained in the Wound after extracting the Stone; or when the Perinæum has been greatly distended, lacerated, or burst, by a large rough Stone; or when, by the Obstruction of a Stone in the Urethra, the Acrimony of the Urine corrodes the adjacent Parts, and at last the Skin, especially if the Patient be of an ill Habit of Body.

The Cure of this Fistula varies according to the Habit of the Patient, and the Degree of this Disorder. When the

Fistula is large, and has consumed a great Part of the Urethra, and the Patient is of an ill Habit and weak, a Cure is not without great Difficulty, and very seldom, obtained; and the more callous, or inveterate, the Fistula is grown, the harder is the Task to remove it. On the other hand, if the Fistula is small, and not much indurated, if the Patient is young, and of a good Habit, the Cure may proceed with Ease and Expedition. But if a Scirrhus is produced in the Prostate Glands, before a Cure can be effected, the Scirrhus must first be removed, which I have learned by Experience to be a most difficult Task.

There are four Methods of treating these Fistulas: 1. The Tent-pipe, or whatever is contained in the Wound, which occasioned the Fistula, must be immediately removed. Then the Patient must be laid upon the Bed, or a Seat, in the same Position as is required for performing the Operation of Lithotomy; and the indurated Sides of the Fistula must be extirpated with great Dexterity. After the Application of a vulnerary Balsam, or Powder, the Lips of the Wound must be brought into Contact by an adhering Plaister, and over it should be laid a narrow Compress on each Side of the Wound, and the Whole must be secured with a tight Bandage. After the Operation, the Patient should be confined to his Bed, with his Knees tied together, and strictly enjoined to abstain from Motion, that the Lips of the Wound may more easily coalesce. For a few Days a very little Drink must be allowed him, that he may not be often excited to make Water. The Dressings ought not to be renewed till the second or third Day, or as long as the Patient can contain his Urine. The Wound being, by these means, almost conglutinated, the Patient may be treated in the same manner, as if he had been cut for the Stone; and, if he has Youth in his Favour, he may begin to walk about gently, and by degrees. Thus, if the Fistula is not malignant, he may be restored to his former Health. 2. Another Method of Cure is, by consuming the indurated or callous Lips of the Fistula with corrosive Medicines; and, after removing the Eschar with Basilicon, or a digestive Ointment, the Wound may be conglutinated by a vulnerary Balsam, and adhesive Plaister, as before. The most proper Corrosives in this Case are, the Troches of red Lead, the Lapis Causticus, or Infernalis, or white Precipitate mixed with *Arcæus's* Balsam; or, in a recent Fistula, a Piece of Blistering-plaister, according to *Chefelden's* Method, as we are told by *Douglas*, in the Appendix to his History of the lateral Operation.

It is to be observed, that the Cure of these Fistulas sometimes advances slowly, especially if the Orifice be wide; if the callous Parts are not totally extirpated or consumed; and if the Patient cannot sufficiently refrain from Motion, or observe a proper Diet. If from these, or the like Causes, the Fistula is not removed, but begins to renew its Callosity, the Operation must be repeated, till the Parts appear sound. 3. Sometimes these Fistulas may be cured, by bringing the Lips of the bleeding Wound, after the callous Part is cut off, into Contact, with a proper Suture, of two or more Stitches. The Dressings may be those before directed; and, as the Lips of the Wound appear to conglutinate, the Threads may be cut and extracted. 4. It may be sometimes necessary, during the Cure, to keep a Catheter in the Bladder and Urethra, by which the Urine may be discharged, and its Course turn'd from the Wound, the Conglutination of which it would greatly obstruct. If the Orifice of the Fistula be too small to admit of these Methods, it may be dilated with a Sponge-tent, or enlarged by Incision.

I shall only mention another Way of treating these Fistulas, which is called *The palliative Method*. For this Purpose is the Instrument described by *Nuck* and *Solingen*, and proposed by *Winflow*, which, while the Fistula is compressed, and closed by it, prevents the Efflux of the Urine that Way; and thus the Disorder, when a perfect Cure cannot be obtained, may at least be mitigated. But Experience informs us, that this is not to be depended upon, as the Urine easily escapes through it, and it is troublesome to the Patient. *Heister. Chirurg.*

In August 1725. Mr. *La Serre*, Apothecary to the King, recommended an *English* Officer to me, who was sixty-six Years of Age, and in a declining Condition.

He had the Scrotum very large and hard, covered with fistulous Sinuses, through which Pus and Urine were discharged; which extended from the Anus to the Root of the Penis, and the Number of them daily increased.

As it was the Urine that occasioned all this Ravage, to prevent its escaping this Way, I endeavoured to introduce the Algaly; and was fortunate enough to pass it into the Bladder, though with much Difficulty, the Canal of the Urethra being very callous and winding in its whole Extent. You know, that, in Fistulas in Perinæo of a short Date, the Canal loses its Pliancy, becoming hard and uneven; that it, also, loses its Figure, growing crooked in proportion to the Number of Callosities.



loftities. I was obliged to change the Direction of my Probe every Inch, in order to advance it: At length, having penetrated into the Bladder, I judged it most proper to leave it there five or six Days, to form the Passage. During the Space of three Weeks I did nothing more than to withdraw the Probe sometimes to clean it, and to introduce another of the same Shape immediately. The Size of the Scrotum was much diminished in this time; and no more Fistulas were formed; some even closed up, and other fresh Callosities were resolved, those only remaining which had so long subsisted.

These not being curable without an Operation, I had a Consultation with Mr. *Petit*, Mr. *Malabial*, and Mr. *Boudou*; when we agreed to make a Passage that should go directly to the Bladder, that we might introduce a Cannula into it, and to take off as much of the Callosity as we could, being persuaded, that the Remainder would dissolve by an ample Suppuration.

I placed the Patient upon the Edge of his Bed, in the same Posture as for Lithotomy; and, instead of the Algaly, introduced a Catheter, and thrust the Point of the Incision-knife cross the Perinæum into its Groove. As the Callosity was two Inches thick from the Skin to the Urethra, I could not feel the Cutvatore of the Probe with my Finger at the Perinæum; and as I cut, was obliged to put my Finger into the Wound sometimes, to seek for the Urethra, that I might not carry the Point of the Incision-knife on one Side the Catheter. The Point being lodged in its Groove, I made an Incision in the same manner as in the Operation for the Stone; and then, ordering an Assistant to hold the Catheter, I removed a Part of the Callosity; then, taking the Catheter into my own Hand, I introduced a Gorget into the Bladder, by means of its Groove, that I might the more easily pass the Cannula.

The first Week a slender Dissolution of the Callosities was procured by the Suppuration; and the Circumference of the Wound, becoming less, made the Dressing more difficult; when, very fortunately, an Abscess was form'd in the Scrotum, on the Right Side, near the Suture. I open'd it, and, taking Advantage of the Opportunity, extirpated all the Callosity between the fresh Wound, and that I had made eight Days before: Then I withdrew the Cannula, and substituted a round Piece of waxed Linen in its stead, as thick as my little Finger, covered with Mucilage-plaster and Diachylon with the Gums mixed together. I lessen'd the waxed Cloths by Degrees, that the Canal might contract a little, and leave a free Passage for the Urine through the Wound.

The whole Urethra being distemper'd, I judged it proper to suppurate that also: To this end, I thrust an Algaly into the Penis; and, passing it through the Wound, put a Seton into the Eye of it at the Extremity; and, withdrawing the Algaly, conducted the Seton through the Penis.

During the first Week, I armed the Seton with the *Unguentum Fuscum*, to consume the Callosities, and to procure a large Suppuration; then armed it afterwards with Diachylon, mix'd with Ointment of Marshmallows: I dressed the Wound at the same time with *Unguentum Fuscum*, or with Diachylon with the Gums melted, with which I armed both Dossils and Pledgets. In short, I desisted from the Use of the Seton, and waxed Linen, in three Weeks, all the Callosities being entirely dissolved.

Now I began to think only of a Reunion, and introduced a leaden Algaly into the Bladder, that the Urine might not pass through the Wound whilst it was healing, (was it possible to effect it) or, at least, till the Canal was form'd.

During all this time, we had terrible Symptoms to encounter. Notwithstanding the exact Regimen observed, the Patient had a very violent Fever for ten Days, his Pulse was intermittent, and the Buttocks almost mortified, by being obliged to lie upon them continually, and the Difficulty attending his being removed. Bleedings proportioned to the different Necessities and Strength of the Patient, a proper Regimen, with Emulsions, and other Remedies, at length quieted all these Symptoms.

While the leaden Algaly was in the Urethra, an Erysipelas came upon the Right Knee, which spread over the Thigh and Leg to the very Foot. I prescribed resolving Fomentations, and in eight Days the Erysipelas terminated by an Abscess of the Bigness of a Crown, covering a Part of the Rotula, and Part of the Ligament that fastens it to the Tibia.

I open'd it when the Matter was form'd, and was surpris'd to find a Stone with the Pus as big as a Lentil, the sixth Part of an Inch thick, and very rugged, resembling a Piece of carious Bone. Moreover, a large Quantity of small Gravel was mix'd with the Pus, which adhered to some small Lumps of indurated Fat. I cut off a Part of the Lips of the Wound, making it flat and oblong: For the Space of a Fortnight, at each Dressing, I took out a Quantity of incrustated Gravel, the third Part of an Inch within the *Pannicula Adiposa*, round

the whole Circumference of the Ulcer; and then it took an happy Turn, and advanced in healing.

During this time the Urine passed by the leaden Algaly, and the Wound in the Perinæum visibly lessen'd.

The Quality of this gravelly Abscess, and that of the Urine, which was very muddy, and loaded with Films, proving a Disposition in the Blood to form Concretions and Petrefactions, I apprehended the Patient would become subject to the Stone, provided the Urine had not a very free Passage; therefore I changed my Opinion as to the Management of the Fistula in the Perinæum, and resolv'd to keep it open instead of healing it. Then, withdrawing the leaden Algaly that was in the Bladder, I put a Cannula into the Wound, whose Extremity reached beyond the bulbous Part of the Urethra, near the Prostatæ. This Cannula, supporting the Sides of the Fistula, which daily approached, suffered the Urine to pass with greater Facility, than by the Canal of the Urethra, which could not have been suppurated without being a little contracted. This Cannula did not confine the Neck of the Bladder; so that the Patient kept his Urine as long as he pleas'd: He wore it a considerable time, only drawing it out sometimes to clean it.

Eight Months after, he came to see me, and to inquire what Method it was most proper to take. He had drawn out the Cannula a Week before, because it was incommodious when he sat; and could not introduce it again. I examined the Fistula, which was a little contracted, and seem'd to be cicatrized: As no Matter issued from it, and he told me the Urine evacuated freely, both by the Fistula, and the Penis, I judged that these two Orifices would be sufficient for it, and prevent the Formation of a Stone; and therefore thought it unnecessary to continue the Cannula.

I saw the Patient about a Year after, when the Fistula was so contracted, that no Urine passed through it, but was freely discharged by the Penis. *Le Dran*.

It has been always an Axiom, that to heal a Wound by the Art of Surgery, or to perform an Operation belonging to it, a thorough Knowledge is requisite, both of the natural and preternatural State of the Part: I go still farther, and say, that the Operation should be performed two or three times in the Surgeon's Imagination, before he comes to the Patient; and that it is an improper Time to take his Measures for the Operation with the Instrument in Hand. The Distemper, which is the Subject of the following Observation, is one of those Cases, whereon (because they are not out of the general Rule) we cannot too much reflect before we begin.

In 1727. I had cut a Boy of twelve Years of Age for the Stone, extracting one considerably large; and he went from the Hospital perfectly cured. In 1729. he felt a Pain in making Water; and the Pain increasing for several Days, a small Hole was at length formed in the Perinæum, by which a Part of the Urine was discharged, the rest evacuating by the Penis. In May 1730. he was brought to *La Charité*; they examined his Distemper, and found a Stone of the Bigness of a Pea, fixed in the Fistula of the Perinæum, just under the Skin, which they easily extracted.

When I went to the Hospital to dress those Patients I had cut, Mr. *Morand* committed this Lad to my Care again. I examined him, and found a small Orifice in the Perinæum, surrounded with Callosities; and could only introduce a very small Probe into the Bladder, which was then confined in the Passage, as though it was in a Case. I endeavour'd to introduce an Algaly into the Penis; but the Extremity of the Instrument, with my utmost Endeavours, would go no farther than the Bulb of the Urethra, because the callous, or fungous Flesh, had either broke, or turned the Passage, by possessing the membranous Part of the Urethra.

The Distemper seeming to me of no small Consequence, I deferred the Operation till the next Day. Having well reflect'd upon the Structure of the Parts, and upon the present Condition, to which the urinary Passage was reduced by the Cicatrices and Callosities, I placed the Lad upon his Bed, in the same Attitude as for the Operation of Lithotomy, with his Hands fastened to his Heels, and supported by assistant Surgeons. First, I introduced an Algaly into the Penis as far as it would go, and order'd it to be held by an Assistant, in such a manner, that the Handle made a right Angle with the Body of the Lad. Then I introduced a very slender Probe into the Bladder, and upon this an hollow one open at the End, so that, embracing the small Probe, it could not err, and withdraw'd the other.

The Groove of the Probe being turned towards the Symphysis of the Os Pubis, I conducted a long strait Bistory by it to the End of the Probe, observing that the Edge directly answered the Extremity of the Algaly; so that all between the two Instruments was divided. I withdrew the Bistory, and, turning the Groove of the Probe towards the Intestinum Rectum,



Rectum, I made a second Incision. This being performed, I passed a Gorget into the Bladder by means of the same Probe; and, by the Assistance of the Gorget, introduced a leaden Cannula. The same Day the Urine, a Drop whereof had not passed by the Penis for three Months before, resumed its natural Course, Part discharging by the Penis, and Part by the Cannula. Perhaps the sudden Thought I had, at the time of the Operation, of turning the Edge of my Bistoury towards the Extremity of the Algaly, occasioned the Success; and that, by this means, I opened and renewed the Communication from the Neck of the Bladder, to the nervous Part of the Urethra. If it had not been the first Day, it could not be done after the Dissolution of the Callosities. I continued the Use of the Cannula for the Space of eight Days, during which time I dissolved and destroyed the Callosities by the Assistance of Escharotics. At the End of this Term, I took out the Cannula, and left the Cicatrization of the Wound to Compresses and Bandage; and he was perfectly cured the twentieth of June.

## AN ABSCESS OF THE PERINÆUM.

On the nineteenth of September 1726, a Gardener, about twenty-two or twenty-three Years of Age, leaving his Work in the Evening, was seized with an acute Pain in both Groins, which gave him a Difficulty in Breathing the whole Night. He sent for his Surgeon the next Day, who, having examined the painful Part, found neither Tumor, nor Inflammation: He bled the Patient, who was attacked with a Shivering some Hours after Bleeding, which was followed by a Fever. In the Evening he was bled again, and the Pains were a little quieted; but the third Day the Shivering and Fever returned about the same Hour; and then the Pain fixed upon the Perinæum. He was again twice bled the two following Days, and, at each time, his Pains went off, and began again soon after.

This induced his Surgeon to bleed him again the sixth Day. The Patient still complained; and, though neither Elevation nor Inflammation appeared upon the Part, they applied anodyne Cataplasms, which were continued for several Days: In this Interval, the Fever was become continual, the same Pains subsisted, and yet nothing appeared externally. The Surgeon gave the Patient several Clysters, and purged him, substituting emollient Fomentations instead of the Cataplasms. The Patient remained in this Condition till the Beginning of October, when a Tumor began to appear in *Perinæo*; and, on the seventh of that Month, he came to the Hospital.

Till this time he could not make Water, but with infinite Pain, and only by a Drop at a time; at length he had a total Suppression of Urine, and was obliged to be probed in the Night.

In the Morning I found the Tumor in *Perinæo* inconsiderable, and probed him to know in what Condition the Urethra was; and, the Catheter not passing without Difficulty, there was Reason to presume it was affected either by the Pressure or Inflammation.

To hasten the Suppuration, I applied a maturing Cataplasm, which occasioned the Tumor to rise considerably in the Night; and, finding a Fluctuation in the Morning, I open'd it, first introducing the Algaly into the Bladder, that I might not lose Sight of the Urethra. A great Quantity of serous Pus issued from it; and though the Incision was large, having dilated as much as possible, both above and below, all the Sinuses were not open'd, some extending beyond the Reach of my Finger: Then I dressed the Wound according to Art. The Patient made Water freely after the Operation, the Urethra not being affected, and no longer compressed. He was bled again that Day.

When the first Dressing was removed, all the Sinuses appeared, which furnished a large Quantity of Pus. There was one which passed from the Neck of the Bladder, even towards the Bottom of it, in the Cellular Texture that surrounds it, and another that extended behind the Tuberosity of the Ischion.

The Patient was bled again, but the Fever never left him; besides, he had a yellowish Complexion. I used deterfive Injections to all the Sinuses in vain; the Wound was always of a bad Colour. The sixth Day after the Operation, he was seized with a Shivering, which was followed by many others very irregular; and, the Suppuration diminishing, he died on the ninth.

I opened the Body, and found, besides the Sinuses that extended by the Side of the Bladder into the Cellular Texture that surrounds it, the Os Pubis, and Os Ischion, so extremely carious, that you might crumble them between your Fingers, like a Piece of Touchwood.

## R E M A R K S.

It is not surprising, that the Bone should be so far destroyed in so short a time; for the Os Pubis is of a spongy Texture,

like the Extremities of the large Bones; and their Cells are always lined with a Membrane furnished with Vessels and Glands, that separate the Succus Medullaris from the Blood. This being taken for granted, ought these Parts to be less susceptible of critical and symptomatic Abscesses, than those which are softer? Because the Membranes, lining those little Cells, are not exposed to external Injuries, are they less exempt than others from an Erysipelas or Inflammation? No, certainly; all the Difference is, that they are concealed from us, and lie beyond the Reach of Chirurgical Relief. For this Reason, a Distemper in them ruins the spongy Texture of the Bone, before any certain Sign makes it externally manifest; and, even when it becomes manifest, it is too late to stop its Progress, the Bone being destroy'd.

For this Reason Collections of Pus in the Cellular Texture of the Bones cannot be called *critical*, although the Mass of Blood may be depurated by them, as well as by Matter collected in the softer Parts. Therefore I shall call them symptomatic, since they can only cause the Loss of a Limb, when they are formed upon Parts that may be amputated.

With regard to the Method of Cure in such a Case, the Inflammation that preceded the Putrefaction of the Membranes, might have been dissipated by copious and repeated Bleedings. It is true, that the Patient was bled five times in five Days; but the Relief he received from each Bleeding, is a certain Proof, that, if these five had been performed the first Day, the Inflammation would have entirely yielded.

Though nothing appeared externally, yet there was a deep acute Pain; and wheresoever that is found, it is sufficient to fear an Inflammation, if not already begun, at least at hand; and to act accordingly.

The Blood may, without doubt, be disposed to be inflamed, and fix indifferently upon one Part or another; but its Quantity, its rapid Course to one Part more than another, for Reasons of which we are ignorant, these two, jointly with the small Diameter of the Vessels, are what cause the Disturbance, which must of Necessity augment, while the same Causes subsist. We must, therefore, not only diminish the Quantity of Blood, and divert its Course, when it threatens any Part, by a convenient Regimen, but by copious and quickly repeated Bleedings.

Four Bleedings, in twenty-four Hours, often stop the Progress of an Inflammation, that twenty would not cure, when once arrived to a certain Degree. *Le Dran's Surgery*.

N. B. An Algaly is a sort of hollow Probe or Catheter.

PERIN-KARA. *H. M.* A wild Olive-tree of a vast Bigness, growing in *Malabar*, and bearing Fruit in Form, Size, and Substance, resembling the larger Sort of Olives; when ripe, they are of a purplish-azure Colour, of a sweetish acid and grateful Taste; but, when immature, they are of a yellowish Colour, and of an austere and bitterish Taste.

The Fruit is accounted a Delicacy, and preserved with Sugar, or kept, like Olives, in Pickle, to serve as Sauce for other Foods at Dinner and Supper, being strengthening to the Stomach, and greatly promoting Digestion. *Raii H. P.*

PERIN-NIROURI *feu Ma Nirouri. H. M.* A *Malabar*ian bacciferous Shrub, with a brittle Stone containing six Kernels.

PERIN-PANEL. *H. M.* A bacciferous *Indian* Shrub, bearing its Flowers in Clusters, and an oblong Fruit, containing four Seeds: It grows in *Malabar*, and is always green, and with Flowers and Fruit upon it. Of the Leaves dry'd, and put upon Coals, is made a Suffumigation, which is said to give a most effectual Relief in hysteric Paroxysms. *Raii H. P.*

Of the Flowers, Fruits, and Roots, boiled in Water, with Long-pepper, and the Seed of Cumin, is prepared a Drink, which is highly commended for the Asthma, Cough, Phthisis, and the like Affections of the Lungs. The Leaves with the Bark, boiled in an Infusion of Rice, and reduced to the Form of a Cataplasm, and thus applied to a Tumor, are said to be powerful Ripeners of the same. Of the Bark of the Tree boiled with Milk, Honey, and Butter, is prepared a Balsam, which, taken inwardly, and applied outwardly to the Place, is said to cure the Pleurisy. The *Tijerin Nirouri*, the Authors of the *Hortus Malabaricus* tell us, is very like the preceding; and they have given us no distinguishing Characters of it, nor added a Cut. *Raii H. P.*

PERINYCTIDES. Pustules, or Pimples, which break out in the Night.

PERIODEUTES, *περιοδευτής*. A Mountebank.

PERIODUS. The Period of a Disease is the Time betwixt the Access of one Fit, or Paroxysm, and that of the next, including the entire Exacerbation, Decline, and Intermision, or Remission. These, in some Diseases, are frequently very regular and constant, as in Fevers; but in chronical Disorders,

more



more irregular and uncertain, as in Epilepsies: Hence such Diseases are called *Periodical*.

The Period of the Blood is its Circulation.

PERIOSTEUM. The fine sensible Membrane of the Bones. See Os.

PERIPHIMOSIS. The same as PARAPHIMOSIS.

PERIPLEUMONIA. The same as PERIPNEUMONIA.

PERIPLOCA.

The Characters are ;

The Flower is monopetalous, and rotated ; the other Characters are the same with those of the scandent *Apocynum*.

*Boerhaave* mentions five Species of *Periploca* ; which are,

1. *Periploca* ; foliis oblongis. *T.* 93. *Apocynum, folio oblongo*. C. B. P. 303.

2. *Periploca* ; *Monspeliaca* ; foliis rotundioribus. *Tourn. Inst.* 93. *Boerb. Ind. A.* 315. *Scammonia Monspeliaca*. Offic. *Scammonia Monspeliaca foliis rotundioribus*. C. B. P. 294. *Scammonia Monspeliaca dicta*. Park. Theat. 164. *Scammonia Monspeliaca flore parvo*. J. B. 2. 136. *Scammonia Valentina*. Ger. 716. Emac. 866. *Apocynum latifolium Scammonia Valentina*. Raii Hist. 2. 1088. ITALIAN, or FRENCH SCAMMONY.

It is cultivated by the Botanists, and flowers in *August*. The concreted Juice, which is useful in Medicine, requires to be given in a larger Dose than that of the true Scammony, as being less effectual. *Dale*.

3. *Periploca* ; *Monspeliaca* ; foliis acutioribus. *T.* 93. *Scammonia Monspeliaca affinis, foliis acutioribus*. C. B. P. 294. *Apocynum latifolium, amplexicaule*. J. B. 2. 135. M. H. 3. 611.

4. *Periploca* ; foliis *Scammonia* acutissimis.

5. *An Periploca* ; foliis atro-viridibus, maculatis, *Scammonii* latioribus? *Boerb. Ind. alt. Plant.*

The Plant is of a poisonous Quality, especially the fourth Species ; but not to such a Degree as the *Apocynum*. The Juice of the second is a Species of Scammony, and operates almost in the same Manner. *Hist. Plant. adscript. Boerb.*

PERIPLUSIS, *περίπλους*. A Diarrhoea, when the Excrements discharged are extremely thin and watery, is sometimes called by this Name.

PERIPNEUMONIA VERA. A true Peripneumony, or Inflammation of the Lungs ; from *περί*, about, and *πνεύμων*, the Lungs.

When in those pulmonary Vessels which are susceptible of an Inflammation, a true Inflammation is form'd, the Disorder is called a *Peripneumony*.

The Vessels susceptible of such an Inflammation are the Bronchial and Pulmonic Arteries, and their lateral lymphatic Vessels.

Hence we may conceive two different Kinds of Peripneumonies, one of which has its Seat at the Extremities of the Pulmonary Artery, and the other in the Bronchial Arteries.

It is sufficiently obvious, that the former is far more dangerous than the latter ; that the more dangerous may arise from that which is less so ; and that they have many Causes in common.

These numerous Causes may be reduced,

1. To the general Causes of all Inflammations throughout the whole Body.

2. To those which in a particular manner affect the Lungs, such as an Air too humid, dry, hot, cold, heavy, or light ; or an Atmosphere impregnated with caustic, astringent, or coagulating Exhalations, and consequently unsalutary ; a thick, dry, and viscid Chyle, either mixed with acrid Particles, or free from such a Mixture ; violent Exercises of the Lungs by Running, Wrestling, Efforts, Singing, Crying, or Riding hard against the Wind ; coagulating, caustic, and astringent Poisons introduced into the Veins running to the Heart ; violent Perturbations of Mind ; a Quinsy accompanied with an Oppression of the Breast, and an Orthopnoea ; a violent Pleurisy, and an excessive Paraphrenitis.

If these Causes have once excited the Disease, it will produce various Effects, according to the Diversity of the Part affected ; for a Bronchial Inflammation, by Compression and Contagion, inflames the contiguous Extremities of the Pulmonary Artery.

When the Extremities of the Pulmonary Artery are inflamed, the Blood becomes stagnant, the Vessel is extended, the most liquid Part of the Fluids is, as it were, expressed by Transudation ; the thicker Part of the Fluids is accumulated ; and all the Blood, as yet capable of Circulation, is collected between the Right Ventricle of the Heart, and the Extremities of the Pulmonary Arteries : Hence the Lungs become oppressed, incapable of expanding themselves, and livid ; the Left Ventricle of the Heart is deprived of Blood ; a great Weakness is brought on ; the Pulse is small, soft, and highly unequal ; the Respiration is small, frequent, difficult, hot, accompanied with a

Cough, and incapable of being performed but in an erect Posture ; the Blood about the Right Auricle and Ventricle of the Heart stagnates ; the Face, Eyes, Countenance, Fauces, Tongue, and Lips, become unusually red ; and, at last, a suffocating Death, attended with an unsurmountable Anxiety and Delirium, ensues.

If a Peripneumony strongly affects both Lobes of the Lungs at once, a sudden and inevitable Death will ensue ; since, in such a Case, Nature can be assisted by no antiphlogistic Medicine.

But if a Peripneumony affects only a small Part of one of the Lobes of the Lungs, and does not proceed from violent Causes, there are some, though not infallible Hopes, that it may be happily cured.

From what has been said, we may deduce the diagnostic and prognostic Signs of a Peripneumony ; especially if we consider, that the Terminations of this Disorder are the same with those of an Inflammation. Hence it has, also, various Stages, according to the different Times of its Duration ; so that it may terminate in a Recovery, some other Disease, or in Death.

A Peripneumonia is cured,

1. By a benign Resolution, if the Habit is lax, the Humour mild, the Viscidity not too great, and the Part affected, whether in the Bronchial, or Pulmonary Arteries, not considerable.

2. By a speedy, free, and copious spitting of yellow thickish Matter, mixed with a little Blood ; in consequence of which the Pain is alleviated, Respiration amended ; the Pulse render'd larger and fuller, and the Spit itself soon transformed into a mild Nature, and changed into a white Colour. This principally happens, when the Seat of the Disorder, whether in the Bronchial or Pulmonary Artery, is not very large.

3. By a bilious Flux, which affords Ease, and in which a Matter, almost resembling the Spit already described, is eliminated.

4. By a copious, thick, and hypostatic Urine, which affords Ease, has, at first, a red, and then a whitish Sediment, discharged before the seventh Day. In this Case, the Respiration becomes easy ; the Fever mild, and of a good Kind ; the Thirst is removed ; and the Heat, Moisture, Laxity, and Softness, are equal all over the Body.

A Peripneumony may terminate in some other Disease, depending either on the Nature of an Inflammation, or of the Lungs themselves, according as they are by this means deprived of their proper Action.

Hence, in the first place, a Peripneumony may terminate in a Suppuration ; which happens, when the inflammatory Matter, being neither resolvable by Nature, nor corrected by Art ; but, however, being mild, stagnant, hot, and acted upon, breaks the small Vessels, resolves them into Pus, and, by extending or corroding the Sides of the Vessels in which it is confin'd, forms an Abscess, or Apostem, within fourteen Days.

That this is about to happen, may be known from the following Signs :

1. If the sure Signs of a pretty severe, though not of the most violent Peripneumony, have previously appear'd.

2. If a Resolution, and its Signs, have not appear'd soon enough ; that is, before the fourth Day.

3. If the Symptoms are neither reliev'd by a concocted Spit, evacuated on the critical Days, which are the third, fifth, seventh, ninth, eleventh, and fourteenth, which indicates that the Cure is begun, by the successive Change of the Spit ; nor by Venesection, nor by Medicines, and a proper Regimen.

4. If on the contrary, the Symptoms, of themselves not very violent, obstinately remain, and are accompanied with a soft undulating Pulse, and a continual *Delirium*.

That an Apostem is really forming, may be known,

1. If the Signs above enumerated are present.

2. If slight, wandering, and often recurring Horripilations happen without a manifest Cause ; if the Pain remits, and the Dyspnoea continues ; if the Cheeks and Lips are red ; if a Thirst is present, and a Fever, especially towards the Evening, afflicts the Patient ; and if the Pulse is weak and soft.

That an Apostem is already form'd, may be known,

1. From the preceding Signs :

2. From the obstinate and dry Cough, which is increased after eating ; the difficult, small, and wheezing Respiration, which is accompanied with a kind of Noise, and increased after Eating or Exercise ; a Capacity of lying with Ease only on one, and that is the affected, Side ; a continual periodical Fever augmented after Eating, Drinking, or Exercise, and attended with a Redness of the Cheeks and Lips ; a Loss of Appetite ; an excessive Thirst ; Night Sweats, especially about the Breast and Forehead ; frothy Urine ; Paleness ; Extenuation ; and, lastly, from the extreme Weakness of the Patient.

An Apostem already formed has various Terminations ; for

1. It either suffocates the Patient by a Tumor possessing the whole



whole Lungs, and which either compresses, or hinders those Parts of them, which were before free; or,

2. An Apostem suffocates the Patient by an Eruption of Pus, the Apostem discharging itself into the Aspera Arteria all at once; or,

3. An Apostem is dissipated by purulent Spit, which consumes it, and frees the Patient from the Disorder; or,

4. An Apostem is terminated by a Falling of the Pus into the Cavity of the Thorax, or the dilated Vacuities of the *Mediastinum*: And,

5. Hence arise Consumptions, of various Kinds, and an Empyema, which generally proves mortal.

A Peripneumony terminates in some other Disease, if the purulent Matter, becoming inflammatory, is resorb'd into the Pulmonary Veins, mixed with the Blood, and deposited on some particular Parts. Hence the Lungs are freed, and some other Parts loaded; and, if these are less requisite to Life, the Translation is good; but, if the Translation is to the Liver, Spleen, or Brain, the Event is generally fatal. Hence peripneumonic Abscesses are form'd about the Ears, Legs, and Hypochondria.

That such Abscesses are about to be form'd, may be known,

1. By an Observation of the Signs of a Peripneumony not of the worst Kind; accompanied with a Fever, neither violent nor malignant, though continual; with a Pain, Anxiety, and Heaviness of the Thorax, and a Dyspnoea, which are not violent, and without being attended with the Signs of a Resolution.

2. If, in Conjunction with these Signs, the Pulse is greatly and continually fluctuating; and,

3. By the Pains, Redness, Heat, and Tension, about these Parts.

That such Abscesses are about to be form'd about the Legs, may be known,

1. If the Signs of future Abscesses are present; and

2. If, together with these, the Signs of a slight Inflammation about the Hypochondria are observed.

That such Abscesses are about to be form'd about the Ears, may be known,

1. If the Signs already enumerated are present; and,

2. If the Hypochondria are at the same time soft.

That the Matter of an Abscess is convey'd to the Liver, may be known,

1. If the before enumerated Signs are present; and,

2. If there is a permanent Pain of the Liver, accompanied with a Discharge of yellowish Urine, and a yellow Colour of the Skin. Hence, an Apostem of the Liver arising, terrible Disorders are produced.

If these Abscesses in the Legs, and about the Ears, relieve the Lungs, and remove the Fever; if they remain purulent, running, and fistulous; and if they happen soon enough, that is, before the ninth Day; they are always salutary: But, if they arise after the Spit is already purulent, though not very yellow, and without affording Relief, they are bad; but if, after they are form'd, they disappear, the Disease being crude, and the Peripneumony returning, they are absolutely mortal.

A Peripneumony may, also, terminate in a callous or scirrhus Tumor of the Lungs, if an impacted Matter, and other Conditions, contributing to the Generation of a Scirrhus, concur. See INFLAMMATIO. Hence the Patient's Respiration during the whole remaining Part of his Life is difficult, attended with a Cough, cannot be performed but in an erect Posture, is increased after Eating and Exercise, and unaccompanied with the already described Signs of a latent Apostem. Hence arises the Adhesion of the Lungs to the Pleura.

If the Bronchial or Pulmonary Artery are, either from an internal or external Cause, seized with a violent Inflammation, a Gangrene soon arises; and hence a Sphacelus, on account of the Quantity and Motion of the Blood, and the continual Motion of these slender Viscera. That a Gangrene is about to happen, may be known,

1. By the Signs of an highly violent Peripneumony, not relieved by any Accident, or Art.

2. By the great and sudden Weakness, principally discovering itself in the Pulse; and,

3. By a Coldness of the Extremities. But that a Gangrene is already form'd, may be known, if these Signs have preceded, and if the Spit is ichorous, thin, cineritious, livid, black, and fetid. This State is soon succeeded by Death.

These various Changes of a Peripneumony are to be learned from an Observation of the History of the Disease, and a Dissection of the Carcasses of those who have died of it.

Hence 'tis obvious, that the Disorder which the Antients described under the Name of a *Peripneumony*, is a true Inflammation of the Lungs.

The Prognostic, therefore, will be clear and just, when we assert, that a Peripneumony is always dangerous, on account

of the great Necessity of the Function of the Lungs to Life, and the Correction of the inflammatory Matter; on account of the Quantity and Impetus of the Blood continually convey'd to the Lungs; on account of their perpetual Motion; on account of their Situation, which prevents the Application of Remedies; on account of the Tenderness of their small Vessels, which are easily destroy'd; and, lastly, on account of the Impossibility of a Revulsion, so requisite to the Cure of an Inflammation.

From what has been said we understand, when, why, and with what Symptoms, a Peripneumony proves mortal: For if the whole Lungs, together with the Heart, are inflamed; if the Heart falls to the Side; if the Patient is seized with a Paraplegy, becomes cold, and is deprived of Sensation; then he dies on the second or third Day. If, in the Beginning of the Disease, the Urine is good, and duly concocted, but thin after the fourth Day; if, in the Height of the Disorder, the Patient is obliged to sit erect; if he discharges Pus by Stool; if the Disease is of the dry Kind, and accompanied with an Heat and Noise in the Throat, proceeding, as it were, from a Stuffing of the Lungs; if the Disease is violent in very dry, hard, and callous Habits, and such as have been accustomed to Exercise; if it is of a bad Kind, and accompany'd with a Stillicidium of very red Blood; if it is of the dry Kind, accompanied with red Spots on the Breast; if a Coryza, or excessive Sneezing, either precedes or follows it; if it arises from a burning Fever; if a bilious Spitting with Pus begins immediately after the sixth Day; if from the Beginning the Spit is very bloody, entirely yellow, white, and round, very frothy without affording Relief; if it is dark-coloured, clayish, like the Lees of Oil, black, livid, unequal, or æruginous; and lastly, if neither the Fever, nor the Difficulty of Respiration, remit; the Patient dies on the seventh or ninth Day. And, when such Patients die, their Pulse fails, all the Parts of their Bodies become cold, except their Breast, Neck, and Head, which are intensely hot, and their Cheeks become red and livid.

The Cure of a Peripneumony is to be varied according to the different Stages of the Disease, and its Symptoms; so that what is beneficial at one time of the Disorder, is injurious at another.

If, therefore, in a Peripneumony, the Habit is lax, the Humour mild, the Viscidity not great, and the Part of the Bronchia and Lungs affected, not considerable, the Patient is to use Rest of Body and Mind, a tepid moist Air, a Vapour-bath of pure Water, applied to the pulmonary Region, the Nostrils, the Mouth, the Feet, and the Legs, slender Aliment, and light Drink; aqueous, nitrous, farinaceous Medicines, and Preparations of Honey. Thus,

Take of Barley-water, forty Ounces; of Nitre, two Drams; and of Oxymel, four Ounces: Mix, and let the Patient drink two Ounces warm every Quarter of an Hour.

But if, in a Peripneumony, a speedy, free and copious Expectoration of yellow thick Spit, which alleviates the Pain, amends Respiration, renders the Pulse larger and fuller, and gradually becomes more mild and white, the last-mentioned Medicines are not only to be used, but, also, such as are of an emollient and depurating Nature, such as promote Expectoration, and are gently restorative, and Steams. In this Case we are to abstain from Venesection, Purgatives, Sudorifics, and every other thing capable of disturbing Expectoration.

Take of Pellitory of the Wall, Agrimony, and Dandelion, each one Handful; of the bruised Seeds of white Poppies, and Fennel, each one Ounce; and of Liquorice, one Ounce and an half: Boil in fifty Ounces of Water, and exhibit in the same manner, and for the same Purposes, with the former.

If a Peripneumony is attended with a bilious Flux, which affords Ease, and in which the Matter eliminated resembles the Spit above described, mild and emollient Clysters are to be used; gentle Fomentations are to be applied to the Abdomen; emollient and gently laxative Decoctions are, also, beneficial; taking, at the same time, the other Measures before recommended.

If, in a Peripneumonia, a copious, thick, and hypostatic Urine, with a Sediment at first red, and then gradually becoming whitish, is, to the Relief of the Patient, discharged before the seventh Day, let all the Measures already prescribed be taken; but let Baths for the Feet be added, and Fomentations of the Kidneys by internal emollient Clysters, and the Application of Linen Cloths externally: Let the Patient, also, drink Decoctions of a gently abstergent and diuretic Nature. For this Purpose,

Take



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Take of the Roots of Grafts, Butchers-broom, Parsley, and Fennel, each two Ounces; of Masterwort, two Drams; and of the bruised Seeds of Burdock and Parsley, each one Ounce: Boil with forty Ounces of Water, and exhibit for the same Uses with the former.

If the Inflammation is recent, great, and dry, in a robust Habit, a little before sound, and habituated to Exercise, it may be discovered by the Signs already enumerated; and we are forthwith to have recourse,

1. To speedy and copious Venesection, which is to be instituted according to the Degree of the Disease, and duly repeated, that the Quantity of thick Blood may be lessened, and proper Room made for diluting Liquors.

2. To Vapour-baths of an emollient Nature, continually applied to the Pulmonary Region, and frequently to the other Parts of the Body.

3. To diluent, resolvent, emollient, laxative, antiphlogistic, nitrous, and anodyne Decoctions, to be often drank warm, and in small Quantities.

4. To mild antiphlogistic Clysters: And,

5. To a slender Diet, consisting of antiphlogistic Juices.

If the Inflammation, being great, accompanied with a Fever, and other violent Symptoms, lasts beyond the third Day, and if the Signs of an Inflammation tending to a Suppuration are present, there is always much Danger, though the Disease may be protracted so long, as to afford a due Time for the Cure. In this Case,

1. We are to use no Venesection; or, if some important Circumstance call for it, only a small Quantity of Blood is to be taken away.

2. We are to use slender Food, but somewhat incrassating, and consisting of maturing Substances, as Pot-herbs, farinaceous Vegetables, Peas, and ripe Autumnal Fruits.

3. Till the fifth Day, from the Beginning of the Disorder, we are to use Baths for the Region of the Lungs, consisting of emollient and maturing Ingredients.

4. On the fifth and sixth Days, we are to use these Baths, adding Sorbitions, which gently excite a Cough, and produce Repletion, that thus, on the seventh Day, the Part may be relieved by a Discharge of concocted Pus, the Vessels attenuated, and Life sustained. For this Purpose,

Take of the Vinegar of Squills, six Drams; Oxymel of Squills, three Ounces; Sal Polychrestum, one Dram; Barley-water, eight Ounces; and distilled Hyssop-water, four Ounces: Mix all together; and let the Patient drink one Ounce every Half-hour.

Take of Coffee, two Pints; of Honey, two Ounces; and of Elder-vinegar, half an Ounce: Mix all together, and let the Patient drink as much of it as he pleases warm.

If sufficient Signs inform us, that an Abscess is form'd in the Lungs, its breaking into the Aspera Arteria is to be accelerated; after which the ulcerated Part is to be quickly and safely depurated.

The breaking of the Abscess is brought about, if, after the Use of many soft and subpinguious Aliments, and soft Wine, the Lungs already suppurated, and prepared by warm Steams, are agitated either by Crying, Coughing, Expectoration, Concussion in a Ship, or Coach.

But as soon as there are any Signs, that the Apostem is broken, we are to use a Milk, and a mild, and not easily putrefying, vegetable, Diet: Then, in the Day-time, we are to use aperient and deterfive Medicines; and, towards Evening, gentle Opiates: Emollient Steams, sailing in a Ship, riding on Horseback, or in a Coach, are, also, to be used.

Medicines of an aperient and deterfive Quality, proper for open Ulcers of the Lungs, are these following: The Leaves of the common, black, white, and golden Maidenhair, Agrimony, Lady's-mantle, Brooklime, Betony, Meadow-daisy, Borrage, Oak of *Jerusalem*, Bugle, Spleenwort, Germander, Ground-pine, Succory, Dandelion, Endive, Hedge-mustard, Fennel, Fumitory, Ground-ivy, Noble Liverwort, Star Liverwort, Alexanders, St. John's-wort, Hyssop, Woad, Lettuce, Harts-tongue, white Horehound, Devil's-bit, Moneywort, Rest-harrow, Primrose, Self-heal, Sage of *Jerusalem*, Soapwort, Scabious, Water Germander, Solomon's-seal, Flixweed, Coltsfoot, Garden and wild Valerian, Vervain, Veronica, Periwinkle, and Goldenrod.

The same Intention is answered by Gum Ammoniac, Galbanum, Opopanax, Sarcocolla, Mastich, Myrrh, Olibanum, and Turpentine.

Take of the recent Leaves of Agrimony, Goldenrod, Betony, and Garden Valerian, each one Handful; of white Horehound, one fourth Part of an Handful; of the Five

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aperient Roots, each one Ounce; of the Flowers of the Lesser Centaury, Agrimony, and St. John's-wort, each one Handful: Boil in four Pints of Water; of which let the Patient drink two Ounces every two Hours: Or,

Take of the Roots of Burdock, China, and Sarsaparilla, each three Ounces: Boil in Water for half an Hour; then add three Ounces of Sassafras-wood; and when they have boil'd a little, add to three Pints of the Decoction, two Ounces of the Syrup of the Five aperient Roots. Its Use is the same with that of the preceding.

Take of the best and most transparent Myrrh, two Drams; and of the Yolk of a new-laid Egg, one Scruple: To these, when duly Triturated together in a glass Mortar, add of the best Frankincense, two Scruples: Make into Pills, consisting of three Grains each, of which let the Patient take one or two before the Use of the Decoction.

Take of the best Myrrh, two Drams; and of *Sperma-ceti*, one Dram: Make into a Powder, to be divided into twelve equal Doses; one of which let the Patient take every Morning and Evening with the Decoction.

Take of Myrrh, and Olibanum, each one Dram; and of the purest Honey, two Ounces: Mix, and let the Patient take one Dram every Hour.

Gentle Opiates, to be used in the Evening, are these following:

Take of the Pilulae de Cynoglossa, one Scruple; form into six Pills; of which let the Patient take one or two in the Evening, before going to Bed.

Take of the Styrae Pill, the same Quantity: To be used in like manner, and for the same Use.

Take of Opium cut into thin Slices, and gently dried, one Grain; of red Coral, twelve Grains; and of Olibanum, six Grains: Make into a fine Powder, to be used like the others, before going to Bed.

Taste of the Syrup of Diacodium, half an Ounce; of the Aqua Vitæ of *Matthiolum*, one Dram; and of distilled Hyssop-water, one Ounce: Make into a Draught, to be taken in the Evening.

Take of Opium, one Grain: Make into two Pills; one of which is to be taken in the Evening.

Take of Opium, one Grain; of the Syrup of Maidenhair, four Drams; and of the Water distilled from the Flowers of the red Poppy, one Ounce: Make into a Draught.

For an emollient Steam:

Take of the Leaves of Mallows, Marshmallows, and Pelitory of the Wall, each two Handfuls; and of the Powder of Linseed, two Ounces: Boil in Water; and let the Patient receive the Steam, as he draws in the Air.

If there appear Signs, that the inflammatory Matter is become purulent, reformed by the Veins in the Lungs, thence convey'd to the Blood, and deposited on some other Part, whence the Lungs are relieved, and the Part which receives the Matter oppress'd, without any Certainty whither the Matter will tend, then the Patient is to use a light, fluid, gently aromatic, and somewhat vinous Diet. His Body is to be preserved in a State of Rest: Let his Medicines be emollient, and gently aperient: Let his Lungs be treated with Emollients: Thus the peccant Matter will either be determined to some other Part, or farther dissolved and eliminated: For this Purpose,

Take of the expressed Juice of recent Chervil, and of sweet Milk, each four Ounces; and of the Syrup of Hyssop, one Ounce: Make into a Mixture; of which let the Patient drink one Ounce every two Hours.

But if to the Signs which indicate, that such Abscesses are about to be formed, those which signify a Determination of the Matter are join'd, the last-mentioned Measures are to be taken; and, at the same time, the Parts indicated for the Deposition of this Matter, whether Ears, or Legs, are to be so treated by Suction, Relaxation, Stimulants, and Aperients, that they may resist less, and attract the Matter more.

If the Matter is determined to the Liver, the same Measures are to be taken with those prescribed when the Abscess is absorb'd, without any certain Prognostic whither the Matter tends: But, at the same time, let Aperients somewhat stronger, saponaceous



aceous and hepatic Substances, be used : Then let Clysters, and Fomentations of the like Ingredients be, also, prescribed.

Take of the greater Soapwort, two Handfuls ; of recent Endive, four Handfuls ; and of the Flowers of wild Succory, three Handfuls : Boil in three Pints of Water ; and of the expressed Decoction, let the Patient drink two Ounces every two Hours.

When a Peripneumony terminates in a callous or scirrhus Tumor of the Lungs, it is rarely susceptible of a Cure ; tho' it may sometimes yield a little to external and internal Emollients, to riding on Horseback, or in a Coach.

When a Peripneumony degenerates into a Gangrene, it is absolutely incurable.

If in a Peripneumony, beginning to be carried off by Spit, the Expectoration is stopt, we are immediately to use all our Endeavours to recal it. The Causes which retard this Expectoration, are generally an excessive Cold, suddenly admitted to the Body ; and excessive Driness of the Parts all over the Body ; a burning Fever succeeding ; heating Medicines ; a Discharge of Stools, which does not prove critical ; excessive Sweating ; and violent Commotions of Mind.

Immediately upon this, a fresh Inflammation arises from a Suppression of the Matter, and an Increase of it from Congestion : Hence are forthwith produced the same Symptoms which arise from a primary Peripneumony ; but Accidents of this Nature generally soon prove mortal to Patients already weakened.

When a Suppression of Spit in a Peripneumony, beginning to be carried off by that means, happens, the Misfortune is prevented, by the Steam of some hot, moist, and emollient Substance, continually drawn into the Mouth and Nostrils, and by that means convey'd to the Lungs ; and by an Air artificially rendered similar, or of a like Quality, with this Steam : The liberal Use, also, of Liquors of a like Nature, especially when prepared with Honey and Vinegar, is highly beneficial. The same Intention is, also, promoted by gently resolvent antiphlogistic Medicines, such as diaphoretic Antimony with fixed Nitre ; by gentle Opiates ; by avoiding Sweat ; and, principally, by preserving the Calmness and Tranquillity of the Mind. For this Purpose,

Take of simple Oxymel, three Ounces ; of the Syrup of the Five aperient Roots, two Ounces ; of a Decoction of Ground-ivy, ten Ounces ; and of pure Nitre, one Dram : Make into a Mixture ; of which let the Patient take one Ounce every Hour.

Take of pure Laudanum, two Grains ; of the Flowers of Sulphur, Sperma-ceti, and unwashed diaphoretic Antimony, each one Dram : Reduce to a fine Powder, to be divided into twelve equal Parts ; one of which the Patient may take every three Hours, with an Ounce or two of the preceding Mixture.

Take of the Flowers of Sulphur, two Drams ; of Olibanum, one Scruple ; of Sperma-ceti, half a Dram ; and of unwash'd diaphoretic Antimony, one Dram. Reduce to a Powder, to be divided into twelve Doses, of which let the Patient take one every Hour, with an Ounce of the Mixture.

Take of the recent expressed Oil of Sweet-almonds, one Ounce and an half ; of the Syrup of Violets, Virgin-honey, and the Yolks of new-laid Eggs, each half an Ounce ; form into a Mixture ; of which let the Patient take half an Ounce every Hour, till the Expectoration returns.

**PERIPNEUMONIA NOTHA.** A spurious Peripneumonia.

This Disorder is frequently produced in the Winter by an Excess of Cold, and in the Spring by an Excess of Heat. It generally arises from a viscid Phlegm form'd in the Blood,

1. By farinaceous, crude, austere, and ill concocted Aliments :

2. By a Want of laudable Blood :

3. By a Weakness of the Vessels, Viscera, and Bile :

4. By a Diminution of animal Motion :

5. By a Dissipation of the more liquid Parts of the Fluids, in consequence of a Relaxation of the Secretory Vessels :

6. By a Retention of the grosser Parts of the Fluids, in consequence of a Weakness of the Instruments of Excretion.

This Phlegm gradually stuffs the Lungs, till the Disorder degenerates into this terrible, and, often unexpectedly, mortal Disease.

When this Disorder is of a considerable Standing, it produces various Effects in the Body, and especially those peculiar

to a slow Peripneumony : Hence its Cure must necessarily be difficult.

For Venesection, celebrated so much as is necessary, in some Cases of a true Peripneumony, is in this Disorder highly prejudicial, on account of the Weakness of the Viscera, and a Viscidity of the Juices : Hence, what at first seems to afford Relief, soon after increases the Symptoms.

Attenuants in this Case so much esteemed, whilst they augment the Impetus on the Pulmonary Vessels, often increase the Thickness and Impaction of the obstructing Matter ; by which means they soon render the Disorder mortal.

This Disorder is frequently incident to old Persons, those of pituitous, cold, and catarrhus Habits, or such as labour under frequent *Coryzas*. It is generally produced by all those Causes, which, by quickly moving the stagnant Matter, act upon the Lungs, such as Running, Crying, Singing, Drinking hard, especially of heating Liquors, high Feeding ; the Heat of a Fire, of a Bath, or of the Sun, especially if the Body is suddenly exposed to Cold after such an Heat.

This Disorder at first deceives the unwary Patient by its fallacious Lenity ; for, beginning with a slight Sensation of Fatigue and Weakness, a Prostration of almost all the Faculties of the Mind, a Difficulty of Breathing, and an Oppression of the Breast, it excites so gentle Commotions, that the Heat and Fever scarcely indicate any Danger. Soon after, wandering Horripilations, and the Paroxysms of a gentle Fever, appear. Hence the Difficulty of Breathing, and Weakness, suddenly increasing, Death happens, tho' hardly any Signs of it could be discovered, either in the Urine, or the Pulse.

This Disorder is most prudently cured,

1. By letting Blood from a large Orifice :

2. By a seasonable Injection of Clysters, which are to be repeated daily, till the Symptoms evince, that the Lungs are relieved. For this Purpose,

Take of Honey, three Ounces ; of Nitre, one Dram ; one Yolk of an Egg ; and of Barley-water, eight Ounces : Make into a Clyster.

3. Let the Patient use a slender Diet of Flesh-broth, especially such as are impregnated with mild Acids ; and let him drink a thin Liquor consisting of Water and Honey.

4. Let him use the Steams and Suffumigations described under the Article *PERIPNEUMONIA VERA* : He must, also, drink diluting, detergent, and gently aperient Decoctions : His Legs and Feet are to be bathed, and large Vesicatories applied.

Take of the Roots of Fennel, two Ounces ; of the Roots of Grass, four Ounces ; of the Leaves of Pellitory and Agrimony, each one Handful and an half ; of the bruised Seeds of white Poppy, one Ounce ; and of Liquorice, an Ounce and an half : Boil for a Quarter of an Hour in two Pints and an half of Water ; of which let the Patient drink two Ounces every two Hours.

From what has been said, the Reason is obvious, why a Peripneumony is rarely incident to Children and Women ; as, also, why it hardly ever happens to those whose Solids are very lax ; why in such it is easily, and almost spontaneously, cured ; and, on the contrary, why it is otherwise in robust Constitutions, and those inured to Exercise. From what has been said, it, also, appears, that this Disorder is, for the most part, generated by some other Disease, which precedes it, before the Patient dies of it ; and consequently, that a Peripneumony is the immediate Cause of Death, and almost the last Effect of all mortal Disorders. *Boerhaave's Aphor.*

A Fever, attended with several peripneumonic Symptoms, arises every Year towards the Beginning ; but more frequently at the Close of Winter. It principally attacks such as are of a gross Habit of Body, middle-aged Persons, but oftener those who are more advanced in Years, and too much addicted to spirituous Liquors, especially to Brandy. For as the Blood of such Persons hath been loaded with phlegmatic Humours collected in the Winter, and is put into fresh Motion by the approaching Spring, a Cough is hereby immediately occasioned, whence these Humours hurry to the Lungs ; and then, if the Patient happens to live irregularly, and drinks more freely of spirituous Liquors, the Matter, occasioning the Cough, grows thick, and stops the Passage of the Lungs, and the Fever preys upon the Mass of Blood.

At the Beginning of the Fever, (1.) The Patient grows hot and cold alternately. (2.) Is giddy. And (3.) complains of an acute Pain in the Head, when the Cough is most troublesome. (4.) He vomits up all Liquids, sometimes with, and at other times without, Coughing. (5.) The Urine is turbid, and intensely red. (6.) The Blood taken away resembles pleuritic Blood. (7.) He breathes quick, and with Difficulty : If he be advised to cough, his Head aches, as if it would burst ;



for so the Patient commonly expresses himself. (8.) A Pain of the whole Breast generally accompanies the Disease. And (9.) a Wheezing is heard by the Attendants, whenever the Patient coughs, the Lungs not being sufficiently dilated; so that the vital Passages seem to be closed by the Swelling; whence the Circulation is so intercepted, that there are no Signs of a Fever, especially in gross Habits; tho' this may, also, happen from the Abundance of the phlegmatic Matter, whereby the Blood is so surcharged, that it cannot rise to a perfect Ebullition.

In order to the Cure of this Fever, I judge it proper (1.) To take away that Blood which inflames the Lungs, and endangers Suffocation: (2.) To open and cool the Lungs by pectoral Medicines: And (3.) to abate the Heat of the whole Body by a cooling Regimen. But as, on the one hand, the Collection of the phlegmatic Matter contained in the Veins, and daily affording fresh Supplies for the Inflammation of the Lungs, should seem to indicate frequently repeated Bleeding; yet, on the other hand, I learnt from the most accurate Observation, that this Practice proved very prejudicial in feverish Persons of a gross Habit, especially if they were past the Prime of Life; so that Bleeding with Frequency was often contraindicated. I, therefore, had recourse to frequent Purging in its stead, which is properly enough substituted, where the Patient hath an Aversion to copious and frequent Bleeding.

Accordingly I proceeded in the following Manner: I directed Bleeding in the Arm in Bed, and forbid the Patient to rise till two or three Hours afterwards; because Bleeding, which, in some measure, weakens the whole Body, may, by this means, be more easily born; for the Patient can better bear to have ten Ounces taken away in Bed, than six or seven, when he sits up. The following Day I give this purging Draught in the Morning.

Take of fresh Pulp of Cassia, one Ounce; Liquorice-root, two Drams; three Figs; Sena, two Drams and an half; Troches of Agaric, one Dram: Boil them in a sufficient Quantity of Water, to leave four Ounces of Liquor when strained, in which dissolve an Ounce of Manna, and half an Ounce of solutive Syrup of Roses: Mix the Whole for a purging Draught.

The next Day I usually repeat the Bleeding, and, interposing a Day, I exhibit the purging Draught again, which is to be repeated every other Day, till the Patient recovers. On the intermediate Days of Purging, I advise the Use of a pectoral Decoction, Oil of sweet Almonds, and the like Remedies. In the mean time, I forbid Flesh, and Broth made thereof, but especially all spirituous Liquors; and, instead of these, I allow a Ptisan, made of Barley and Liquorice, boiled in Water, for his common Drink, or small Beer, if he desires it.

This is the Method of curing the spurious Peripneumony, caused by an Abundance of phlegmatic Humours collected in the Blood, and by reason of the Coldness and Moisture of the Winter, thrown upon the Lungs; wherein both repeated Bleeding, and Purging, are indicated otherwise than in a true Peripneumony; which I esteem to be manifestly of the same Kind with the Pleurisy, with this Difference only, that a Peripneumony more universally affects the Lungs: And, indeed, both the Distempers are cured by the same Method, namely, by Bleeding principally, and cooling Medicines.

Though the spurious Peripneumony, in some measure, resembles the dry Asthma, both in the Difficulty of Breathing, and some other Symptoms, yet 'tis sufficiently distinguished from it, as being attended with manifest Signs of a Fever and Inflammation, which never appear in the dry Asthma; but they are much less considerable and apparent in the spurious than in the true Peripneumony.

It must be carefully remarked, that when this Disease attacks such as have been great Drinkers of Brandy, and other like spirituous Liquors, it is by no means safe to quit them of a sudden, but they must be left off gradually; for so sudden a Change makes way for a Dropsy: And this should be made a standing Rule in all other Diseases arising from the same Cause. *Sydenham.*

A pneumatic Fever is one of the acute, inflammatory Kind, arising from a Stagnation of the Blood in the Blood-vessels of the Lungs, or the small Ramifications of the Vena Azygos in the Pleura; and accompanied with an acute and pungent Pain of the Side, a Difficulty of Breathing, an immoderate Heat, an hard and frequent Pulse, a dry or a moist, and, sometimes, a bloody Cough: This Disorder is always dangerous.

There is no inflammatory Fever, which is so incident to Persons of all Ages, Sexes, and Temperaments, in cold as well as hot or temperate Climates, or which affects more epidemically, on account of the Inequality and Intemperature of the Air, than that which happens in the Thorax, whether in the Lungs themselves, or in the intercostal Muscles, both internal and external, lin'd internally with the Pleura, which is a nervous

Membrane. But, according as the Inflammation seizes different Parts of the Thorax, it not only receives different Names; but, also, differs widely with respect to the Symptoms, the Event, and the Method of Cure. The Antients, who were destitute of an accurate anatomical Knowledge of the Parts, thought the Pleura the Seat of a Pleurisy and Peripneumony; for which Reason they gave the Name of Pleurisy to almost every Inflammation in the Thorax: But *Hippocrates* made a Distinction between a Pleurisy and a Peripneumony. For this Reason all the ancient Physicians, those of the intermediate, and those of the present Age, are of Opinion, that in a Peripneumony the Lungs were affected, whereas in a true Pleurisy the Lungs were not at all affected, but only the Pleura, and the Muscles which it lines. But this Assertion is false; for *Petrus Servius*, according to *Welschius*, in *Decad. 1. Curat. 4.* upon dissecting three hundred Subjects who died of a Pleurisy, always found one of the Lobes of the Lungs affected; and fill'd with Matter, whilst the Pleura was not sensibly, or at least but very little, corrupted. Hence, in my Opinion, the different Seats of an Inflammation in the Thorax are to be determin'd; that, if it only seizes the external Parts, a spurious Pleurisy is produc'd; if, like an Erysipelas, it seizes the Surface of the membranous pulmonary Substance, a true Pleurisy is produc'd; and the farther it penetrates into the Substance of the Lungs, the more violent the Pleurisy is, and what is called a Peripneumony is produced.

These different Species of Inflammations in the Thorax are, therefore, by the Physician, to be carefully distinguished, by certain peculiar and characteristical Marks: For, in a spurious Pleurisy, there is an acute and pungent Pain of the Side, which is increased by being touch'd; lying on the affected Side is difficult; there is a dry Cough without any Expectoration of the pituitous or bloody Matter, which, however, if it is violent, augments the Pain. It is, also, accompanied with a Fever, and a Pulse somewhat hard, depress'd, and frequent. It is produc'd not so much by a Stagnation of the Blood, as of the Serum, in the Extremities of the small Arteries, and Veins connected with the Vena Azygos, and in the Extremities of the small Ducts in the Pleura, or in the Periosteum of the Ribs, where the Sense is still more acute and intense. Hence 'tis no more than a Species of Rheumatism, and for that Reason incident to those who are subject to Catarrhs, rheumatic or arthritic Pains, or who are now-and-then afflicted with an Hemierania, especially when they remove from an hot to a cold, or from a cold to an hot Air, particularly in the Evening: Nor, for this Reason, is Venesection necessary, but only a Diaphoresis, and an increased Perspiration; by which means it is generally easily terminated about the seventh Day, and is free from Danger.

But a true Pleurisy is a sanguineous Inflammation, arising from a Stagnation of Blood in the small Ducts of the Bronchial Vessels discover'd by *Raysch*, and which are only subservient to the Nourishment of the Membranes, Vessels, and Vessels, which constitute the Fabric of the Lungs. Hence, in this Disorder, the Lungs are principally affected, tho' only as to their more external and superficial Part. Hence there is, in this Disease, a greater Difficulty of Breathing than in a spurious Pleurisy; there is, also, a Discharge of bloody Spit, and the Disease is terminated by Expectoration. It is, also, accompanied, for the most part, with a Fever, tho' of a more acute Kind than that attending a spurious Pleurisy. There are, also, Pains in the affected Side, tho' not so intense, nor capable of being augmented by the Touch; for the Pleura, which lines the Thorax, is, also, drawn into Consent, both because the exterior Pulmonary Membrane is form'd of the Pleura, and because in most Men the Lungs, at least on one Side, adhere to the Pleura.

In a Peripneumony the Pain is rather tensive, obtuse and pressory, than acute, and is propagated to the Back and Scapulae: But there is a greater Anxiety and Difficulty of Breathing, and a more painful Expectoration, in which Spit of various Colours is discharg'd; for, in a Peripneumony, the Vessels of the Lungs, which convey the Blood from one Ventricle of the Heart to the other, are affected, insarcted, and obstructed, by a thick Blood, which, in Process of Time, assumes a solid Nature. For this Reason it is attended with greater Danger, and soon destroys those whom it seizes, especially if they are old, or if seasonable Venesection is omitted.

But tho' the Antients were not very accurate in distinguishing the Inflammations of the Thorax; yet because this Misfortune was very frequent in those Parts where *Trallian*, *Aretaeus*, *Caelius Aurelianus*, and others of them, liv'd, a more exact History of the Symptoms of the Disease may, perhaps, be drawn from them than from the Moderns. But, among all the others, *Aretaeus* seems to be the most distinct, who, in *Lib. 1. Cap. 10. Acut.* speaks in the following manner: "It is accompanied, says he, with an acute Pain ascending to the Throat, and an intense Heat: But the Pain, in some Patients,



“ tients, extends to the Back and Scapulæ ; a Difficulty of Breathing, also, ensues ; Watchings, Loathing of the Aliments, a Redness of the Cheeks, a dry Cough, a Spit which is discharged with Difficulty, pituitous, pretty bloody, or yellowish. It is still worse, if a bloody Spit is not expectorated, and if the Patients are delirious or comatous.” The same Author, also, informs us, that the Patients die or recover within the seventh or fourteenth Day, according as the Symptoms are violent, or gentle ; or, if the Disease is protracted to the twentieth Day, that they are seiz’d with an Empyema. He adds, that the Disorder is most frequent in the Winter, less frequent in the Autumn, still less in the Spring, unless it should happen to be very cold, and least of all frequent in the Summer. He, also, tells us, that old Persons are most subject to this Disorder ; whereas Children are either not at all subject to it, or not endangered by it, because their Lodies are moist, rare, and subject to copious Exhalations.

But since the violent Symptoms, which accompany a pneumonic Fever, are only founded on the Inflammation of the pulmonary Substance, we may readily perceive, that all things which hinder the free Circulation of the Blood through the Vessels of the Lungs, either by an Obstruction of the Ducts, by a Redundance of thick Matter, or a strong spasmodic Constriction of them by a thin, acrid Matter, are subject to generate this inflammatory Fever, especially when many antecedent, procatactic, and remote Causes concur to the Production of this Effect. Those, therefore, who by gross and impure Aliments, the Use of spirituous Liquors, a Defect of Moisture and Exercise, have a large Quantity of thick Blood, which Sydenham, by way of Distinction, calls pleuritic Blood, easily, when other procatactic Causes concur, fall into this Disorder ; especially when the Body, by intense Exercise, hard Labour, warm Baths, or the drinking of spirituous Liquors, is rendered excessively hot, and afterwards exposed to a cold Northern Air ; or, which is still worse, when cold Liquors are greedily drank. This Disorder is, also, quickly generated in sanguineous and plethoric Habits, by the Omission of seasonable Venesection. The same Misfortune happens to Women, whose Menstrues flow either immoderately, or too sparingly, or if, through Age, they are entirely suppress’d ; as, also to Men, in whom the hæmorrhoidal Flux is either not duly carried on, or entirely suppress’d.

I have frequently observed, that Gripes, Spasms, colical and hypochondriacal Pains, accompanied with a violent Costiveness, have been succeeded by Inflammations of the Lungs, especially in plethoric and cacochymic Habits ; for such is the Nature and Quality of these, that by compressing the Vessels, especially the Veins, they hinder the free Circulation of the Blood, render its Motion greater, and its Congestion, especially to the superior Parts, more copious. By which means it afterwards happens, that the Blood is not only urg’d to those Ducts, which, on account of the Smallness of their Diameters, generally neither receive nor convey the Blood ; but, also, remaining impacted in these narrow Channels, interrupts the equable Progress of the Blood, and disturbs all the natural Functions. And because Persons very subject to Hæmorrhages are, for the most part, of sanguineous Habits, and subject to spasmodic Strictures in the Abdomen, hence it is, that young Persons, who have been early subject to large Hæmorrhages from the Nose, Spittings of Blood, or the Hæmorrhoids, occasional Causes concurring, easily fall into Pleuritis or Peripneumonies. ’Tis, also, confirmed by frequent Experience, that Inflammations of the Breast have been produc’d by repelling Itches ; by preposterously stopping simple or dysenteric Fluxes ; by consolidating old Ulcers ; by suppressing a critical and usual Sweat of the Feet, or of the whole Body ; and by the Repulsion of chronic purple Eruptions by external Cold ; for this recrementitious Matter, of an acrid and caustic Quality, being impacted in the nervous Coats of the Lungs and Thorax, by reason of the spasmodic Strictures it excites, hinders the equal and due Circulation of the Blood. Nor is it uncommon for an Inflammation to be produced in the Thorax after the Small-pox and Measles, since these Disorders always leave some Fault or Weakness in the Lungs.

Besides, in consequence of the preternatural Constitution of the Air and Weather, it frequently happens, that Pleuritis, both of the true and spurious Kind, rage epidemically. This principally happens in a long and cold Winter, as, also, when a warm Air, and a light State of the Atmosphere, is suddenly succeeded by a cold, northerly, and highly elastic State of the Air ; and when this last happens, especially in the Spring and Autumn, Fevers, both of the catarrhal, malignant, benign, and pleuritic Kind, rage. After a severe Winter, I have observ’d crude Pleuritis raging, in which the Spit hardly appear’d on the ninth and tenth Day. These Pleuritis are, by Hippocrates, Lib. 2. de Morb. called dry Pleuritis ; and, during the first Days of these, the Patients are greatly tormented and wasted with a racking Cough, so that the Discharge of Spit proceeding, the

Patients are hardly able to bear the Expectoration, and with great Difficulty recover : There are, also, endemial Peripneumonies ; for it is certain, that a Peripneumony is a very frequent Disease, and proves mortal to many, in *Westphalia*, *Pomerania*, *Sweden*, *Denmark*, and *Russia*. This, in my Opinion, is owing to the gross and coarse Food, and the Coldness of the Air, in these Northern Climates.

In no Fevers have I more accurately observed the Crises, than in a Pleurisy and Peripneumony ; for, in young and robust Persons, a bloody Spit generally appears about the fourth Day ; and, on the seventh, the Disorder is spontaneously terminated by a profuse Sweat. In phlegmatic and languid Constitutions, as, also, when the Disorder has a deep Seat in the Lungs, there is a Termination of the Disease on the eleventh or fourteenth Day, partly by Expectoration, and partly by Sweat, the Pulse becoming softer, the Sleep calmer, and the Strength being increased. In an imperfect Crisis, a Sweat, tho’ not sufficient, also, appears on the critical Days ; for which Reason, it neither relieves the Patient, nor terminates the Disease : And, when the Disorder continues to the twenty-first Day, a dangerous Abscess of the Breast is to be dreaded. It is, therefore, a good Sign, when the Expectoration from the Lungs succeeds well, carrying off, on the fourth Day, a viscid, bloody, then yellow, and, sometimes, a purulent Matter ; and the more expeditious the Spitting is, the greater Hopes there are of a Recovery ; and, on the contrary, the slower it is, the less Hopes of Safety are to be entertained ; only, we are to take care, lest, when the Disease terminates by a copious Expectoration of virulent Matter, it should be succeeded by a Phthisis, or an Hectic : But frequent Stools are never safe : Urine without a Sediment is a bad Sign ; as, also, profuse Sweats happening not on the critical Days. But when, on the eleventh or twelfth Day, a moderate Looseness happens, in which a purulent Matter is sometimes discharged, a Recovery is not to be despair’d of. When, also, about the fourth Day, there is an Hæmorrhage from the Nose, it affords singular Relief.

No Inflammation so readily occurs as a pneumonic Fever, especially when deep-seated, and attended with an Abscess. I have known some, who, being hardly recovered, have, by an irregular Diet, and the liberal Use of rich Wine, relapsed in a Month’s time ; and the Event generally proves fatal. I have, also, known such an Inflammation return twice, thrice, four times, or oftener a Year, in the same Part in which it first appear’d. So that those who have once labour’d under this Disorder, ought always carefully to guard against a fresh Attack, by an exact and proper Regimen.

Those who die of an Inflammation of the Lungs, are suffocated, because they can no longer throw up, by Cough, the Matter lodged in the Vessels of the Lungs, and the Ducts of the Bronchia. In dissecting such Subjects, the Lungs are found inflated, hard like the Liver ; and, because the Vessels are infarcted with a thick and tenacious Blood, they subside when put into Water. I have, also, seen the Lungs full of small Abscesses, and hard Tubercles, whilst the Pleura was inflamed, sphacelated, and adhering to the Substance of the Lungs. I have, also, known Instances, in which polypous Concretions found in the Pulmonary Vein, as, also, in the large Artery, have hindered the free Circulation of the Blood through the Lungs, and brought on an Inflammation, by reason of the too large Quantity of Blood convey’d thither.

Since, therefore, a Stagnation of the Blood, which hinders its equal Circulation, is the immediate Cause of this Disorder, the principal Intention of Cure is, to render it capable of circulating freely ; for obtaining which End, the following Measures are to be taken : First, the farther Stagnation of the Blood is to be prevented. Secondly, the Lentor observable in the Blood of pleuritic Patients is to be diluted and colligated. Thirdly, when the Part affected, and rigid by Spasms, Pain, and a copious Afflux of Humours, is soften’d and relax’d, that thus the impacted Matter may be again wash’d away, and put in Motion by the Action of the arterial Blood : And, fourthly, when the Excretion of the viscid, sanguineous, and purulent Matter, lodged in the Bronchia of the Lungs, is facilitated by Spit, and, by that means, an Abscess, and the Generation of an Empyema, prevented.

In order to prevent the Increase of the Inflammation, nothing is more useful than Venesection ; which is the more beneficial, the sooner it is administered. For this Purpose, let a Vein be opened in the Arm of the affected Side, and a large Quantity of Blood taken away, if there is a considerable Plethora, and the Blood flows with a considerable Impetus : But if a viscid and glutinous Serum floats in the Blood, and the Respiration continues difficult, the Venesection is boldly to be repeated, especially if there is a Suspicion of a deep inflammatory Stagnation.

Among internal Applications, those are most beneficial, which render the Blood, Serum, and Humours, thin and fluid, coagulate those which are thick and inspissated ; and, at the same time,



time, promote a gentle Diaphoresis. The most proper things for obtaining these Ends are, an Infusion of Paul's-betony, Chervil, and Sage, each two Handfuls; Liquorice-root, one Ounce; and Fennel-seeds, two Drams; of which let the Patient frequently drink four or five Dishes. Then let him use the following discutient and diaphoretic Mixture.

Take of the Waters of Carduus Benedictus, Scabious, Elder-flowers, and the Egyptian Thorn, each two Ounces; of Treacle-water, half an Ounce; of distilled Vinegar, one Ounce; of Crabs-eyes, one Dram; of diaphoretic Antimony, two Scruples; of the Syrup of red Poppies, or of Saffron, (prepared of dissolved Sugar, an Ounce; and of Extract of Saffron, eight Grains) two Drams. Of this Mixture two or three Spoonfuls are, every two Hours, to be exhibited alternately with the following Powder.

Take of diaphoretic Antimony, or of the Cerus of Antimony, of Crabs-eyes, of the Jaws of the Pike-fish, of the Tooth of the Sea-horse, and of the Solution of Crabs-eyes, each one Dram; of pure Nitre, two Drams; and of Cinnabar, one Scruple: Make into a Powder, of which, half a Dram is to be taken for a Dose.

When the Patient is languid, and the Pleurisy epidemical, and of a bad Kind, to the foregoing Powder we are to add Camphire, which powerfully resists Inflammations, and hinders them from spreading; only we are to observe, that half a Grain is sufficient for a Dose; and that the Patient is to drink after it an Emulsion prepared of the Four greater cold Seeds, Ladies-thistle, Pine-kernels, and a Decoction of Barley and Harts-horn.

The acute Pains are mitigated, and the rigid Fibres relaxed, by the almost continual Application of a Bladder full of a warm Decoction of emollient Ingredients, such as the Flowers of Elder, Melilot, Mullen, Chamomile, Mallows, and white Lilies, the Four carminative Seeds, and Saffron, boiled in Milk. *Aretæus*, therefore, in *Lib. 1. Acut.* in the Cure of a Pleurisy, prudently orders a Bladder full of warm Oil to be applied to the Part affected, provided the Fomentation is not of such a Weight as to increase the Pain. And, certainly, by this Topic, the Pain is considerably alleviated, the Respiration facilitated, and the peccant Matter prepared for Expectoration, which is greatly promoted by the following Linctus.

Take of the Oil of sweet Almonds, half an Ounce; of Sperma-ceti, two Drams; of Saffron, ten Grains; of the Syrup of Violets, and Sugar-candy, each half an Ounce: Make into a Linctus; of which some is to be frequently taken in a Decoction of excoriated Oats, or in sweet Whey.

The principal Part of the Cure depends upon Venesection, concerning which *Aretæus*, in *Lib. 1.* has these Words: "In pleuritic Cases, no Delays are to be used; but we are to have recourse to the most powerful Remedy with all Expedition: For which Reason a Vein is to be open'd in the Arm the very first Day of the Disorder; and, when a moderate Quantity of Blood is taken away, the Patient is refreshed. Then, some time after, the Operation is to be repeated, if the Patient can bear it; if not, it is to be delay'd till the following Day." These Measures are not only useful in Youth, but, also, in old Age, because Persons in this last State abound more with a thick and tenacious Blood, which renders their Inflammations more fix'd, and worse to be discuss'd; for which Reason Venesection is, also, to be repeated in old Persons, if their Strength will admit of it. We are, above all things, to be careful, that the Quantity taken away bear a Proportion to the Strength and Quantity of Blood of the Patient; for, if too large a Quantity is taken, the Expectoration is not only hindered, but, also, the Stagnation of Blood to be dissolved more confirmed, or the Disorder degenerates into a Sphacelus. But, if too small a Quantity is taken away, little Good is produced; the Blood, acquiring more Room, flows more impetuously to the Part affected; and the Stagnation and Inflammation are increased.

In a Pleurisy and Peripneumony, the Body is to be kept soluble, and the Intestines free from Spasms: This is the Advice of *Trallian*, and of *Hippocrates*, in *Lib. 3. de Morb.* where he tells us, "That, in the first four or five Days, the Body is to be rendered soluble; and so much the more, the slower the Fever, and the slighter the Pains are." For this Purpose, we recommend emollient, paregoric, and domestic Clysters, prepared with Oil of sweet Almonds, by which the Body is not only render'd soluble, but, also, the spasmodic Stricture of the Intestines is relaxed. *Aretæus*, also, justly observes, "That we are not to neglect Medicines applicable to

"the inferior Parts, such as Oil of Rue injected into the Anus of Men, and into the Uterus of Women." Which Experiment may be, also, made, if the large Intestines are spasmodically constricted, or in Cases where Women are afflicted with Spasms of the Uterus.

*Trallian*, in *Lib. 6.* in such inflammatory Disorders, greatly and justly commends Drinks prepared of Mulsum and Water, as, also, Cremor of Pistan, well boiled with sweet Almonds, and liberally drank. "It must, says he, be constantly exhibited warm, when Aliments, or other Potions, are given; for," adds he, "no other Medicine is found so beneficial to pleuritic Patients, even tho' the Fever is violent." *Hippocrates*, also, always commends his Pistan; and I myself from Experience affirm, that moistening Liquors, used tepid, are preferable to all other Medicines. But, in order to dilute the Humours, nothing is more beneficial than a Decoction of Oats, or Barley, with the Addition of a Quantity of *Prussian* Honey, and sweet Whey; and the larger Quantity of such a Liquor is taken, especially if the Body sweats much, the more salutary it proves.

As in all inflammatory Fevers, so especially in those of the pneumonic Kind, we are carefully to abstain from too warm a Regimen with respect to Bed, Chamber, and Drink: But we are, also, to guard against Refrigeration, and the Use of cold Liquors. In the Cure of this Disorder, none of those Medicines are to be used, which forcibly provoke Urine, Sweat, or Stools, lest the fine lymphatic Humours, by whose Assistance the Stagnation ought to be dissolved, should be drawn elsewhere; for *Hippocrates*, in *Lib. 3. de Morbis*, when speaking of Stools, justly informs us, "That, if, after the fifth Day, a large Quantity of Matter is discharged by Stool, it proves mortal, since, by that means, the superior Parts are dried, and the Spit not carried upwards. The Body must not, therefore, be too coctive, lest the Fever should be acute; nor too soluble, that thus the Spit may be carried upwards, and the Patient's Strength preserved." But when two, or even four, Stools happen spontaneously, they are not to be checked.

In order to sooth the acute Pains, Anodynes and Opiates are generally commended: But they are to be abstain'd from, by those, especially if old, in whom the Humours are thick, and the Inflammation considerable. "We are, says *Trallian*, in such Cases, carefully to avoid Diacodium and Philonium; for they are dangerous, since they render the Humours difficult to be eliminated, impair the Strength, and render the Patient languid." But in young Persons, when the Pain is intense, we are not, except upon urgent Occasions, to exhibit stronger Anodynes, than Preparations of Poppies: Such as an Emulsion prepared of the Seeds and Syrup of Poppies, or the Diacodium of *Præcorius*, taking care, at the same time, always to mix nitrous and diaphoretic Medicines with them. Externally, in order to mitigate the Pains, and assist the Discussion, besides the things already recommended, a Fomentation, prepared with the warm Fat of a Capon, in an Ounce of which half a Dram of Camphire is dissolved, is useful.

Expectorating and sweet Substances are not to be too soon exhibited, that is, on the first Days; but only when the viscid Matter is concocted, moveable, and fit for Excretion; otherwise a greater Afflux to the Lungs is excited. Some recommend Sperma-ceti, taken in large Quantities, for dissolving the Blood: But I have observed, that this Medicine is more injurious than beneficial, on account of the Nausea it creates; nor, at the same time, is it of so dissolvent a Quality, as Vinegar mixed with Crabs-eyes.

When, on the critical Day, as it frequently happens unless the Physician imprudently raises Commotions, the Inflammation is terminated by a copious Sweat, which is succeeded by a freer Respiration, Ease of Body, and an Increase of Strength, we are still, for some time, to continue the Use of diaphoretic and diluting Medicines, but not to exhibit them so often. Particular regard is, also, to be had to the Method of Living, lest more should be eaten, than the weak Stomach is capable of digesting, that thus the Remains of the Disease may be consumed, and a Relapse prevented. *Hoffman*.

#### A PLEURISY.

A Pleurisy is said to be present, when the Patient labours under an acute, continual Fever, accompanied with an hard Pulse, an acute, pungent, and inflammatory Pain, which in Inspiration is greatly increased, but in Expiration, or during the Retention of the Breath, milder; as it is, likewise, when, without any Motion of the Thorax, Respiration is principally perform'd by the Assistance of the Abdomen: This Disorder is generally accompanied with a perpetual Cough, which excites such an intense Pain, as to endanger a Suffocation.

When, with these Symptoms, symptomatic Expectorations are made from the Lungs, the Disorder is call'd a *moist Pleurisy*; but, when such Expectorations are wanting, it is call'd a *dry Pleurisy*.



This Disorder affects all the Parts of the internal Integuments of the Thorax, the Whole of the Pleura, the Whole of the *Mediaſtinum*; and conſequently, the anterior, poſterior, right, left, ſuperior, inferior, exterior, and deeper Parts, but eſpecially the Sides, are affected by this Disorder.

When the Membrane internally lining the Ribs is the Seat of the Disorder, it is called a *true*, or *legitimate Pleuriſy*: But, if the intercoſtal Muſcles, and thoſe lying above them, are farther affected, the Disorder is call'd a *ſpurious*, or *baſtard Pleuriſy*.

This Disorder principally attacks adult Perſons of ſanguineous Habits, thoſe who eat and drink too copiouſly, who uſe violent Exerciſe, who are rarely afflicted with acid Eructations, and who are diſpoſed to inflammatory Diſorders in the Spring, eſpecially, when an intense Heat ſuddenly ſucceeds a ſevere Cold; or, in the Winter, when exceſſively cold Winds blow: And, in ſuch Caſes, the Disorder is call'd an *idiopathic Pleuriſy*.

But a Pleuriſy ariſing from the Motion of the Matter of a previous inflammatory Diſorder, and its Tranſlation to the Parts already mention'd, is call'd a *ſymptomatic Pleuriſy*.

This Diſorder, for its antecedent Cauſe, has

1. Every thing capable of generating an Inflammation of any Kind.

2. Every thing which, in a particular manner, determines this general Cauſe to the Pleura; ſuch as the Nature of the Patient, according as his intercoſtal Arteries are narrower or harder; a previous Diſeaſe, which leaves a Diſpoſition to the ſame Miſfortunes, ſuch as a Scirrhus or Callus of the Pleura, or an Adheſion of the Lungs to that Membrane; the Nature of a raging epidemical Diſorder; a cold Air convey'd forcibly thro' ſmall Chinks to the naked Body, previously over-heated by Exerciſe, or the Influence of the Fire; cold Liquors copiouſly and ſuddenly drank, when the Body is over-heated; and cold Northerly Winds in the Winter-time.

3. A Tranſlation of the inflammatory, ichorous, or ſuppuratory Matter, before lodged in the whole Body, or in ſome particular Part, to theſe Parts of the Thorax; as in the Meaſles, the Small-pox, ulcerous Tumors, large and broad Ulcers, which ſuddenly diſappear in conſequence of an Abſorption of the peccant Matter into the Veins.

This Hiſtory of the Diſeaſe, together with an Account of its ſeveral Stages, and a Diſſection of thoſe who die of it, ſufficiently evinces, that it is an Inflammation of the ſanguineous Kind in thoſe Parts of the Thorax already mentioned, and generally ariſing from a preceding acute Fever.

Hence we may eaſily deduce the Hiſtory of this Diſeaſe; for it often begins with a pretty keen Appetite for Aliments; a Coldneſs and Horror; a Weakneſs, Laſſitude, and Fever; in Proceſs of Time, it is attended with a moderate Heat, which gradually becomes exceſſively intense; a Thirſt; a total Loſs of Appetite; a Pain at firſt mild, but gradually becoming intolerable; and a conſiderably injured Reſpiration: At its Height it is attended with a violent, tho' leſs perceptible Fever, on account of the Reſpiration, which is check'd, and almoſt ſuffocated, by reaſon of the intense Pain. Hence the Phyſician is often ſhamefully miſtaken; and the Diſorder terminates in various Manners, which depend upon various Cauſes, but eſpecially on the Diverſity of Changes to which Inflammations are ſubject, ſpecified under the Article INFLAMMATIO; on the Nature of the Parts affected; and a due Conſideration of the following Circumſtances: Whether there are more or fewer Parts affected at once? Whether the Impetus of the Blood is violent? Whether the Malignity of the primary Diſorder is great, and accompanied with a Train of unlucky Symptoms? And eſpecially, whether the Reſpiration, Pulse, and Excretions, recede from their natural State?

A Pleuriſy, like other Inflammations, terminates in the Recovery of the Patient, ſome other Diſorder, or Death.

This Diſorder terminates in the Recovery of the Patient, either by the Aſſiſtance of Nature, or of Art, whiſt the Diſeaſe is as yet ſimple and recent.

It is cured by the Aſſiſtance of Nature, either by means of a benign Reſolution, or by a Concoction and Excretion of the peccant Matter.

A Pleuriſy is cured by Reſolution, when the Humours are mild, their Motion regular, the obſtructing Cauſe not too obſtinate and the Obſtruction ſmall; for, in this Caſe, the Benignity of the Symptoms indicates nothing to be done, but only to alleviate the Diſorder by light Aliments, mild Aperients, and ſoftening Fomentations.

A Pleuriſy is cured by the Concoction and Excretion of the peccant Matter;

1. When, by the hemorrhoidal Veins, a proper Liquor is in a due Quantity, and at a proper time, diſcharged.

2. When a copious, thick, hypoaſtatic, ſtrangurious, red Urine, with a white Sediment, is diſcharged, to the Relief of the Patient, before the fourth Day; ſuch a Diſcharge of Urine, alſo, cures a dry Pleuriſy.

3. When, before the fourth Day, copious, bilious, and yellow Stools, are diſcharged, to the Relief of the Patient.

4. When ichorous, purulent, fiſtulous, or long-flowing Abſceſſes begin, before the ſixth Day, behind the Ears, or on the Legs.

5. When the Pain of the Side is tranſlated to the Shoulder, Arm, or Back, and accompanied with a Stupor, Pain, and Heavineſs of theſe Parts.

6. When the Spit is, in ſome meaſure, freely diſcharged, affords Relief, is unattended with a Coryza, copious at firſt, reſembling Pus, ſoon after white, appears before the fourth Day, is continued, or returns immediately after its Suppreſſion; for, in theſe Caſes, the Patient recovers, either on the ninth, or the eleventh Day.

When the Signs, accurately obſerv'd, indicate, that the now deſcribed State of a Pleuriſy is preſent, then the Phyſician is to make no Alteration, but ſuffer every thing to remain as it is. For this Reaſon, neither Venefection, nor Evacuation, nor any other Change, are to be attempted. The Patient is, therefore, firſt, to uſe ſoft light Food, Reſt of Body and Mind, a temperate hot and moiſt Air, ſpontaneous Sleep, or ſuch as is procured by gentle Narcotics, ſoftening, thin, and gently aperient Medicines. Then, ſecondly, each particular Evacuation, which gives Relief, is to be promoted.

When, therefore, in a Pleuriſy, a proper Liquor is in a due Quantity, and at a ſeaſonable Time, diſcharged from the hemorrhoidal Veins, the Anus is to be fomented with emollient, laxative, and aperient Fomentations; or, if theſe ſhould prove ineffectual, Leeches are to be applied.

When the Urine is copious, thick, hypoaſtatic, and ſuch as has been already deſcribed, Fomentations, of the ſame Nature with thoſe now recommended, are to be applied to the Kidneys, Perinaeum, and Hypogaſtrium; lenitive and diuretic Aperients are to be uſed; the Patient is to be kept in an Air ſomewhat cool; Sweating, and other Evacuations, are to be avoided; and mild diuretic Clyſters to be injected.

If, in a Pleuriſy, yellow and bilious Stools are copiouſly diſcharged before the fourth Day, to the Relief of the Patient, the like emollient Fomentations are to be applied to the whole Abdomen, laxative Clyſters are to be injected, and a laxative Regimen preſcribed.

When ichorous, purulent, or fiſtulous Abſceſſes appear before the ſixth Day, behind the Ears, or on the Legs, and if the Part affected is diſcover'd, then the Patient is to uſe a light, fluid, gently aromatic, and ſomewhat vinous Diet, to remain in a State of Reſt, and to have emollient and gently aperient Medicines preſcribed him. The Part, alſo, to which the Matter is determined, ought to be treated with Succion, Relaxation, ſtimulating and aperient Medicines, that thus it may reſiſt leſs, and attract more. Then ſomewhat more ſtrong Aperients may be uſed; as, alſo, ſaponaceous and hepatic Subſtances; to which may be added Clyſters and Fomentations conſiſting of the ſame. Then the Aperture made in the Abſceſſes is to be kept open for ſome time, by ſuppurating Medicines.

When the Pain is tranſlated to the Shoulder, Arm, or Back, and attended with a Stupor, Pain, and Heavineſs of theſe Parts, beſides the things commonly preſcribed, the Parts to which the Pain is tranſlated, are to be fomented with emollient Subſtances, rubbed gently with hot Cloths, and ſtimulated by Plaſters, in ſome meaſure, attractive.

When the Spit is, in ſome meaſure, freely diſcharged, affords Relief, is unattended with a Coryza, is copious, at firſt reſembling Pus, but ſoon becomes white, or appears before the fourth Day, is either continued, or returns immediately after its Suppreſſion, then the whole Treatment is the ſame as in a true Peripneumony. See the Article PERIPNEUMONIA.

By Art, a Pleuriſy may be cured without any other Diſeaſe, eſpecially by the following Method: If a recent Pleuriſy, before the End of the third Day, is accompanied with violent Symptoms of the dry Kind, and found in a robuſt, exerciſed, and dry Habit, without any Hopes, or Preſence, of a Reſolution, or of the Concoction and Excretion of the peccant Matter; then,

1. A large Quantity of Blood is ſpeedily to be taken from a large Vein, with a large Stream, and from a large Oriſice, the Patient, in the mean time, lying at Reſt on his Back, and quickening his Reſpiration, as the Blood flows, by Coughing and Sighing. The Part affected is, in the mean time, to be fomented, and gently rubbed. The Diſcharge of Blood ought to be continued, till the Pain is conſiderably remitted, or the firſt Signs of a Deliquium brought on. The Venefection is to be repeated, according to the Return of the Symptoms it was intended to remove. The Abſence of the Pellicle, formed upon inflammatory Blood, determines when 'tis time to ſtop. And,

2. We are immediately to uſe Fomentations, Baths, hot Applications,



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plications, Liniments, and Plaisters, to relax, resolve, to mitigate, and avert the Pain. See INFLAMMATIO.

3. Then such Medicines are to be exhibited, as dilute, resolve, relax, mitigate, refrigerate, and alleviate, or soothe Pain; which, when taken warm, in a moist Form, in a large Quantity, and determined to the Part affected, are highly beneficial, and may be varied, according to the Symptoms; always taking care, that such Ingredients be chosen, as resist Putrefaction.

4. A light, soft, refrigerating, and antiphlogistic Diet is necessary.

5. Every thing, which dries, heats, or increases the Impetus of the Blood, is to be avoided; such as the Heat of the Air, of the Sun, of the Fire, or of the Bed; as, also, heating Aliments and Medicines. A Fomentation may be prepared in the following Manner:

Take of the Leaves of Mallows, Marshmallows, and Pellitory of the Wall, each two Handfuls; of Garden-poppy, and Henbane, each one Handful; of the Leaves of Elder, Chamomile, and Melilot, each three Ounces: Boil in sweet Milk, for a Fomentation.

Liniments, for anointing the Sides, are these following:

Take of the Sugar of Lead, four Drams; of Vinegar, six Drams; and of the Oil of Roses by Infusion, one Ounce: Make into a Liniment, to be applied to the Side.

Or,

Take of the Unguentum Populneum, two Ounces.

Or,

Of the Emplastrum Diapompholygos, a sufficient Quantity: Spread on Leather, and apply for the same Purpose.

Take of the Leaves of Colts-foot and Mallows, each two Handfuls; of the Leaves of wild Poppies and Marshmallows, each half a Handful; of the Roots of Parsley and Sarsaparilla, each three Ounces; of bruised Linseed, four Drams; of the bruised Seeds of Lettuce and Ladies-thistle, each one Ounce: Boil in three Pints of Water, of which let the Patient drink two Ounces every Hour.

Take of the Four greater and smaller cold Seeds, each three Drams; and of white Poppy-seeds, two Ounces: Make into an Emulsion with Barley-water; with every fourteen Ounces of which mix, of the purest Nitre, one Dram and an half; and of the Syrup of Maidenhair, one Ounce. Let the Patient drink one Ounce every Hour, or every Quarter of an Hour.

Take of the distilled Waters of the Flowers of the red Poppy and Elder, each eight Ounces; of the distilled Water of Borragé, five Ounces; of Crabs-eyes, two Drams; of Sal Prunellæ, one Dram; of the Syrups of the Flowers of red and white Poppies, each one Ounce: Mix, and let the Patient drink two Ounces every Half-hour.

How long these Measures are to be persisted in, or repeated, is to be known from the Obstinacy of the Disease; its Remission, or its Change into a State of Health and Recovery.

A Pleurisy degenerates into other Disorders, first, when the inflamed Part suppurates; which we know, first, from the general Signs of a Suppuration, specified under the Article INFLAMMATIO; secondly, from the Obstinacy of the Pain, Cough, and Fever, beyond the fourth Day; thirdly, from the Absence of the Sign of a Resolution and Cure; and, fourthly, from a Neglect of the proper Measures of Cure.

That an Abscess is already forming, is known from the common Signs specified under the Article INFLAMMATIO; but especially, in this Case, from the often recurring Horror, without any manifest Cause, and the Signs specified in the Article PERIPNEUMONIA. Hence it is, also, known, when an Abscess is actually formed; which sometimes is evacuated by Spit, thro' the Lungs.

But such an Abscess is sometime broken by its own Pus, which drops into the Cavities of the Breast; whilst the Ulcer, as new Pus is formed and accumulated, fills the whole Cavity of the Breast, and consumes the whole Body. That such a Misfortune has happened, may be known from the preceding Signs: From the Duration of the Misfortune beyond the seventh Day; from the sudden Remission of the Symptoms, and their quick Return. Hence arises a Phthisis.

When, therefore, by the Signs already enumerated, we know that the Inflammation is forming into an Abscess, the Part, before painful, when known, is to be corroded by Caustics; an Incision is to be made quite to the Pleura, and kept open by suppurative Medicines, that the Matter, being forced outwards by

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the Action of the Lungs, may be discharged from the Pleura, and prevent an Empyema; then the Part is to be softened, till it is quite cleansed.

But if there are Signs, that, the Abscess being broken, the Pus has already form'd an Empyema, the Thorax is forthwith to be opened, the Pus eliminated, and the Wound cured by proper Regimen and Medicines. See INFLAMMATIO and EMPYEMA.

A Pleurisy, also, degenerates into some other Disease, when, for Instance, the Part affected becomes scirrhus, or callous, or when the Lungs adhere to the Pleura; and, when this last Misfortune happens, there is produced an Asthma, a Dyspnoea, and a dry Cough, especially after Eating or Exercise; from which Signs the Disorder is known, if they are present without the Signs of an Abscess or Empyema, already specified; and, especially, if they continue long, without any great Increase of the Disorder.

This Misfortune, when known, is either absolutely incurable, or to be removed by abstemious Living, Exercise, a free Air, in the Country, violent and often-repeated Riding.

Such an Inflammation, also, degenerates into a Gangrene, first of the Side, and then of the Lungs, by reason of the Contiguity of the latter with the former.

This last-mentioned Disorder arises, either from the Violence of the Pleurisy, or from the acrid and putrid Matter accompanying it.

That a Gangrene of the Lungs is about to happen, or is already begun, may be known from various Circumstances: If, for Instance, the Spit is purulent, and somewhat bilious, round, purulent, and somewhat bloody, black, and fuliginous, dirty, or fetid; if there is a great Noise in the Breast, accompanied with a Sadness of the Countenance; if the Eyes are of a yellowish-red Colour, full of Sordes, and dim-sighted; or if the Spit is at first various; then the Patient often dies on the third or fifth Day: If there is a Stertor, none, or a difficult Expectoration, a languid Pulse, and an high-coloured Urine; if there is a Flux, the Matter of which is liquid, fetid, putrid, and symptomatic; if a violent Peripneumony comes on; if a second Paroxysm succeeds the first; if the Blood is highly florid, when flowing from an opened Vein, and without an inflammatory Pellicle, though it comes from a large Orifice, with a full Stream, and is received into a clean Vessel; if the Spitting is suppressed, whilst the Dyspnoea remains; or is increased, and accompanied with Pain, Heaviness of the Breast, an hard, small, quick Pulse, and an intense Heat; for, when these Symptoms are increased on the fifth Day, they prove mortal on the seventh; if the Urine is highly red, and dark-coloured, with a various and indistinct Hypostasis, the Disorder proves mortal within fourteen Days: If the Hypostasis is black, or surfuraceous, the Disorder proves mortal sooner: If the Pleurisy, being at first mild, is increased on the fifth or sixth Day, the Patients are in Danger on the seventh and twelfth, and are rarely cured, till after the fourteenth; if the Back, Side, and Shoulders are highly red and painful; and if there is a Flux, of which the Matter is green, and highly fetid.

If the Pleurisy is of the dry Kind, on account of the Defect of Strength, the intense Pain, the Unfitness of the Matter for Expulsion, the excessive Contraction and Crispation of the Vessels, and the excessive Use of hot Substances, the Pain, at the same time, tending to the superior Parts; if the Tongue is at first, dry, sordid, livid, or black, with a black Blister on it; if all or most of these Signs happen, the Disorder, which is generally mortal of itself, is not easily cured; but, for the most part, destroys the Patient by a Gangrene of the Part, either in the Side, or in the Lungs contiguous to it.

But when these Signs indicate, that such a Misfortune is already threatening the Patient, the most powerful Remedies are, without Delay, to be used; nor are we to trust to the Assistance of Nature, nor the Influence of gentler Medicines, provided the Patient has a sufficient Degree of Strength remaining.

In this Case, therefore, deep Eschars are forthwith to be excited in the Part affected with the actual Caustery; then they are to be covered with strong, cleansing Medicines, and kept continually warm with penetrating Fomentations; then large Quantities of strong, diluting, aperient, and antiseptic Liquors are to be taken; for by these, if by any, the Severity of the Disorder will be mitigated: For this Purpose,

Take of the Leaves of Scordium, Jack-by-the-hedge, and white Horehound, each two Ounces: Boil in two Pints of Water; with which mix, of the Oxy-mel of Squills, eight Ounces; of Nitre, three Drams; and of Treacle-vinegar, one Ounce: Of this Mixture let the Patient, every Quarter of an Hour, take two Ounces as warm as possible.

But if the Violence of the inflammatory Cause produces the most severe pleuritic Symptoms, neither to be removed by the Assistance of Nature, nor by any antipleuritic Medicine, and if these Symptoms are suddenly removed without a Cause, so

far



far as they depended on the Inflammation, the Pulse remaining quick, small, and intermittent, and the Sweat being small and cold, it is obvious, that a Gangrene has already seized the inflamed Parts. Hence a Delirium, and soon after Death, happens, especially if the Thorax is of a livid Colour. The same Thing happens, if the Patient, who expectorates a somewhat bilious Spit, is relieved of his Pain, without any manifest Reason; for, in this Case, a Delirium, the Presage of Death, produced by a Gangrene, is present.

A Pleurisy terminates in Death, when its Causes are so violent, that the Pain produced, suppressing all Motion of the Thorax, soon creates a mortal Peripneumony, by stopping the Circulation of the Blood.

Hence the Reason is obvious, why a Peripneumony succeeds every violent Pleurisy: Why a Pleurisy is generally mortal to old Persons, Child-bed and pregnant Women: And why the Swathing of the Thorax with a Bandage so alleviates the Disorder, as to render it tolerable. *Berhaave's Aphorisms.*

PERIPSYXIS, *περίψυξις*. The same as PERFRICTIO.

PERIPTOSIS, *περίπτωσις*. A Chance, or fortuitous Accident, by which Remedies for Diseases are sometimes discovered.

PERIPYEMA, *περιπύημα*. A Collection of Matter, surrounding any Part.

PERIRRHEDES, *περίρρηδες*. Bent or broke every Way, or both Ways, or in every Direction. It, also, imports, sprinkled, or irrigated all over. *Hippocrates.*

PERIRRHEPSIS, *περίρρηψις*. The Declination of a Bandage, when it recedes from its due Situation, either to one Part, or to another. *Hippocrates de Officina Medici.*

PERIRRHOEA, *περίρρηια*, from *περίρρηω*, to flow from every Part. A copious Flux of the Humours, or morbid Matter, from all Parts of the Body, to the proper Excretories, in order to their Discharge; or, rather, the Discharge itself.

PERISCELES, *πεισκελές*. An Epithet for a Medicine in *Hippocrates*, importing, very hard, irritating, or pungent.

PERISCEPASTRUM. See CATHOLCEUS.

PERISCYPHISMUS.

This Operation, which, according to the Etymology of the Word, imports an Incision round the Cranium, is performed on those, who are afflicted with copious Defluxions on the Eyes, supplied by a large Number of deep-seated Vessels. During this Disorder, the Patients Eyes are extenuated, small, their Sight weak, and their Angles corroded; the Eyelids are exulcerated, and the Hairs fall from them; thin, acrid, and hot Tears are discharged; and an acute and deep-seated Pain of the Head afflicts the Patient, who, also, sneezes in a violent Manner, without Interruption. We are, therefore, in this Case, to shave the Head; and, avoiding the Temporal Muscles, to make a transverse Incision from the Left to the Right Temple: But let the Incision be confined to such Parts, as are possessed of no great Degree of Motion: Thus, for Instance, let it be made a little above the Forehead, taking care, at the same time, to avoid the coronary Suture. *Leonides* orders the Incision to be made in the Middle of the Forehead. When the Bone is denuded, we are to separate the Lips of the Incision by means of Tents, or a large Quantity of Lint; but the Extremities of the Incision are to have proper Dressings applied to them, which are to be moistened with Wine and Oil. When the Dressings are removed, and the Inflammation declining, we are to rasp the Bone, till it begins to produce Flesh, and carry on the Cure by means of incensing Powders. Among which are, that prepared of two Parts of the Flour of Wheat, and one Part of Colophony, the Powder called *Pulvisillus Capitalis*, and incensing Compositions of Pumice; for, when the Skin is rendered thick by a Cicatrix of this Kind, the Orifices of the Vessels are shut up, and, by that means, the former Defluxion to the Eyes is prevented. *Paulus Aeginet. Lib. 6. Cap. 7.*

PERISPHALSIS, *περίσφασις*, from *περισφάλλομαι*, to wander about. A Circumrotation of a luxated Bone, in order to its Restitution.

PERISSOSIS, *περίσσωσις*, from *περίσσω*, redundant. A Redundance, or superfluous Plenitude of the Humours. *Hippocrates.*

PERISTALTICUS, from *περιστέλλω*, to compress, or contract. The vermicular, spontaneous Motion of the Intestines, by which the Faeces are protruded towards the Anus, is called the *Peristaltic Motion*.

PERISTERON. A Name, in *Dioscorides, L. 4. C. 6.* for the *Verbena*, Vervain.

PERISTOLE, *περίστω*. In *Hippocrates, de decenti Habitu*, it imports a modest and composed Dress, or Habit. But it, also, signifies the compressive Power of the animal Fibres, and the peristaltic Motion of the Intestines.

PERISTOMA. The villose Coat of the Intestines.

PERISYSTOLE. The Interval of Rest betwixt the *Systole* and *Diastole* of the Heart.

PERITERION. The perforating Part of the Trepan.

PERITEXIS, *περίτηξις*. A Colliquation.

PERITONÆUM, *περιτόναιον*, from *περιτίνω*, to extend round.

After the Removal of the Muscles of the Abdomen, in Dissection, the first Thing that appears, is a very considerable membranous Covering, which adheres immediately to the inner Surface of the transverse Muscles, and of all the other Parts of this Cavity; and involves and invests all the Viscera contained therein, as in a Bag. This Membrane is named *Peritonæum*.

It is of a pretty close Texture; and yet very pliable, and capable of a very great Extension; after which it can recover itself, and be contracted to its ordinary Size; as we see in Pregnancy, Dropsies, Corpulency, and Repletion.

It seems to be made up, at least, of two Portions, one internal, the other external; which have been looked upon, by many Anatomists, as a Duplicature of two distinct membranous Laminae: But, properly speaking, the internal Portion alone deserves the Name of a membranous Lamina, as being the main Body of the Peritonæum; the external Portion is no more, than a kind of fibrous, or follicular Apophysis of the internal, and may be properly enough termed the cellular Substance of the Peritonæum.

The true membranous Lamina, commonly called the *internal Lamina*, is very smooth and polished on that Side, which is turned to the Cavity and Viscera of the Abdomen, and continually moistened by a serous Fluid, discharged through almost imperceptible Pores.

These Pores may be seen, by spreading a Portion of the Peritonæum on the End of the Finger, and then pulling it very tight on all Sides; for then the Pores are dilated, and small Drops may be observed to run from them, even without a Microscope.

The Sources of this Fluid are not as yet sufficiently known. Perhaps it comes out by a kind of Transudation, or Transpiration, like that which we observe in Animals newly killed. The whitish Corpuscles, found in diseased Subjects, are no Proof of the Glands, which some Anatomists place there in the natural State.

The cellular Substance, or external Portion, of the Peritonæum adheres very closely to the Parts, which form the Insides of the Cavity of the Abdomen; and it is not every-where of an equal Thickness. In some Places it is in a very small Quantity, and scarcely any appears at the tendinous or aponeurotic Portions of the transverse Muscles, and on the lower Side of the Diaphragm.

In all other Places, it is thicker, and forms Cells expanded into very fine Laminae, which, in diseased Subjects, become sometimes so broad and thick, as to resemble so many distinct Membranes.

In some Places this Substance is every way like a *Membrana Adiposa*, being filled with Fat, as round the Kidneys, and along the fleshy Portions of the transverse Muscles, to which it adheres. It entirely surrounds some Parts, as the Bladder, Ureters, Kidneys, and spermatic Vessels; and it is, in these Places, improperly termed the Duplicature of the Peritonæum.

Besides these Differences in Thickness, the cellular Substance has several Elongations, which have been called *Productions of the Peritonæum*. Two of these Productions accompany and invest the spermatic Ropes in Men, and the vascular Ropes, commonly called the *round Ligaments*, in Women. There are other two, which pass under the *Ligamentum Fallopii*, with the crural Vessels, which they involve; and they are gradually lost in their Course downward.

To these four Productions of the cellular Substance of the Peritonæum, we may add a fifth, which is spread on the Neck of the Bladder; and, perhaps, a sixth, which accompanies the *Intestinum Rectum*. All these Elongations pass out of the Cavity of the Abdomen, and may be termed external, to distinguish them from others, that remain in the Abdomen, and are called *internal*.

The great Blood-vessels, that is, the Aorta and Vena Cava, are likewise involved in this cellular Substance of the Peritonæum. In a word, it involves immediately, and separately, all the Parts and Organs, which are commonly said to lie in the Duplicature of the Peritonæum.

The true Lamina, or membranous Portion, of the Peritonæum is connected, by the Intervention of the cellular Substance, to the inner Surface of the Cavity of the Abdomen; but it does not naturally accompany the external Elongations of that Substance; it only covers the Origin, or Basis, of these Productions, without any Alteration in its own Surface at these Places.

It has, nevertheless, Productions of its own; but they are very different from those of the cellular Substance; for they run, from without, inward; that is, they advance from the convex Side of the great Bag of the Peritonæum, into the Cavity of that Bag, some more, some less, and, also, in different Manners;



ners ; as if the Sides of a large Ball or Bladder were thrust inward into the Cavity of the Ball or Bladder.

Of these internal Elongations, or Intropressions of the true Lamina of the Peritonæum, some are simply folded, like a Duplication ; some are expanded, like inverted Bags, or Sacculi, to contain some Viscus ; some begin by a simple Duplication, and are afterwards expanded into a Cavity, which contains some Organ ; some are alternately extended in the Form of simple Duplicatures, and of Cavities ; and, lastly, some form only a small Eminence on the inner Surface of the great Cavity of the Peritonæum.

Under the first Species of these Productions we may bring the membranous Ligaments of the Abdomen, such as those of the Liver, Colon, &c. We see the second Species in the external Membrane of the Liver ; the third in the Mesentery ; the fourth in the Mesocolon ; and the fifth, at the Kidneys and Ureters.

Besides the external Productions of the cellular Substance of the Peritonæum, it has the same Number of internal Elongations with the true Lamina, which lie between all the Duplicatures, and line the Infides, of all the Cavities, or that Side, next the Viscera, contained in them.

The Uses of the Peritonæum seem to be very evident, from its Description ; and the principal Uses are, to line the Cavity of the Abdomen ; to invest the Viscera contained in that Cavity, as in a common Bag ; to supply them with particular Coats to form Productions, Ligaments, Connexions, Folds, Vaginæ, and the like.

The fine Fluid, which transudes through the whole internal Surface of the Peritonæum, prevents the Inconveniences, which might arise from the continual Frictions and Motions, to which the Viscera of the Abdomen are exposed, either naturally, or by external Impulses.

I must here observe, that it is the common Custom to demonstrate four ligamentary Ropes, termed the umbilical Vessels, before the Peritonæum is opened, because they adhere to the Umbilicus, and three of them are really Vessels in the Fœtus, two umbilical Arteries, and one Vein.

Three of these umbilical Ropes, or Ligaments, are involved separately, and sustained by a Production, or Duplication, which the Peritonæum sends into the Cavity of the Abdomen, in the Form of a Falx. *Winslow's Anatomy.*

PERIZOMA, from *περιζώνω*, to gird about. A Belt, or Truss.

PERLA. A Pearl. See CONCHIA MARGARITIFERA, and MARGARITÆ.

PERNA. A Sort of Shell-fish. See PINNA.

PERNIO. A Chilblain, or Kibe.

Tumors of this Kind are produced, generally, in the Hands and Feet, by extreme Cold ; and they are attended with Redness, Inflammation, Heat, pricking Pains, and an Inability of Motion in the Part affected. Sometimes Pustules appear, and then the Ulceration penetrates deep. The Humour emitted is sometimes a little fetid, and either resembles Pus, or Sanies. Frequently the Inflammation degenerates into a Sphacelus. From these Symptoms, in my Opinion, Chilblains may be reckoned a Species of Inflammation ; and so much the more, as, like other Inflammations, they excite a Sense of Heat, and terminate in a Discussion or Separation, or degenerate into a Gangrene and Sphacelus.

Chilblains may be known by various Symptoms : 1. The common Appearances of Inflammation are to be observed. 2. It must be inquired, whether the Parts affected have suffered by extreme Cold, as in performing a Journey, or in military Expeditions and Sieges undertaken in the Winter. 3. If the Patient feels an itchy Sensation, attended with Heat, and a pricking Pain, and if the Part becomes stiff and insensible.

When the Chilblains swell and redden, if the Part retains Sensation and Motion, without a great Degree of Heat and Pain, the Disorder is mild. On the other hand, when the Chilblains are livid, and the Part is affected with a Stiffness, Numbness, and pricking Pain, there is great Danger of its degenerating into a Gangrene, or, at least, a deep Exulceration. When Pustules rise upon the Skin, like those after a Burn, they are certain Signs of an immediate Gangrene. Lastly, when the Sensibility of the Part is lost, and it becomes livid, soft, flaccid, or fetid, there is Reason to suspect a Mortification, or Sphacelus.

The principal Cause of Chilblains is certainly Cold ; for, by a violent Degree of Cold, as in other Inflammations, the small Blood-vessels are not only constricted, but the Blood is, also, inspissated. Nor is there any Degree of this Disorder, but may be readily accounted for, as a Consequence of these Causes.

Naturalists are not yet unanimous with regard to the true Nature of Cold, which has generally been imagined to be only the Effect of a Privation of Heat ; but I am rather of Opinion, that some acid, rigid, hard, and saline Particles, which were

before rendered soft, subtile, and volatile, by the Heat, are again condensed and indurated by the Cold. Now, when these Particles insinuate themselves into the small Pores of the Body, they constrict the small Blood-vessels ; and, upon their bursting, the Blood is inspissated, and stagnates. Hence, in my Opinion, it happens, that the Skin of the Face, Lips, and other uncovered Parts, becomes chapped, broken, and affected with a continual pricking Pain, by the Cold. The slower the Motion of the Blood, and the smaller the Degree of Heat in any Member, the more gently is the Blood impelled into the Vessels of that Member. So that there is no Cause of Wonder, that the Hands, Fingers, Feet, Toes, Heels, Nose, and Ears, are more subject to Chilblains, than the rest of the Body, which are sometimes milder, and sometimes more severe. Sometimes the Cold is so extreme, as to stop the Circulation of the Blood entirely over all the Body ; which necessarily occasions the Death of the Patient, and he is commonly said to have perished with Cold.

Chilblains are almost always, in some Degree, dangerous ; and the more the Part affected has suffered by the Cold, both the Violence of the Symptoms, and the Danger, are the more increased. The Danger is, also, greater, when a whole Hand, or Foot, has suffered by the Inclemency of the Cold, than when only a single Finger or Toe is affected. But the most troublesome Circumstance is, that those, who have once been afflicted with Chilblains, are almost every Year subject to Inflammations and Pains ; or, in an extreme Degree of Cold, to malignant Ulcers, Chaps, and even a Gangrene. Lastly, when Chilblains are unskilfully treated, when they are removed from the Cold, and suddenly exposed to an Heat, or the Fire, or wrapt up in warm Cloths, there is the utmost Danger, that the Part will become black, soft, and putrid, and, having lost all Sensation, contract a Sphacelus.

Hence, then, it may appear, that the principal Part of the Cure consists in restoring the inspissated Blood to its former Fluidity and Circulation ; and this Intention must be answered by a Method different from those used in other Inflammations. For warm Applications, which are beneficial, and even absolutely necessary, in other Inflammations, are found to be extremely pernicious in Chilblains. Nor is it safe to expose those, who have suffered by extreme Cold, to a Fire, or Heat ; because the sudden Vicissitudes of Heat and Cold produce an immediate Mortification. It seems, therefore, much more safe and convenient, to bring the Patient into a cool or temperate Air, and to order him to exercise his Limbs continually, and then to be gradually introduced into a greater Degree of Warmth. When the Patient is too weak to exercise himself, let the Part affected be well rubbed with Snow, or cold Water, which will seem warm to him ; by which means the acrid, saline Particles, sticking in the Pores, will be extracted, and the natural Circulation of the Blood restored. As soon as the Sensation returns, comforting Medicines are gradually to be applied, such as Spirit of Wine alone, or mixed with Treacle, Oil of Petre, and Balsam of Sulphur. When the morbid Part has been well rubbed with these Remedies, the Patient may be gradually brought to the Fire, or put to-bed, afterwards endeavouring to raise a gentle Sweat.

For this Purpose let the Patient gradually drink a few Glasses of warm Wine, boiled with Cinnamon and Sugar ; for by this Method the Patient will revive, and grow warm, and the Circulation of the Blood will be restored. Nor will it be improper to give, alternately with the Wine, a little of the following sudorific Mixture :

Take of the Waters of Goats-rue, Rue, and Scordium, each two Ounces ; of the Aqua Theriacalis, and the Aqua Vitæ Matthioli, each six Ounces ; and of the Aqua Prophylactica Sylvii, half an Ounce ; of the Mixtura simplex, or of the Tincture of Bezoar, two Scruples ; and of the Syrups of Cinnamon and Cloves, each half an Ounce : Mix all together.

About three Spoonfuls of this Mixture should be given to the Patient every Quarter of an Hour, and the hot Wine as often, till the Sweat appear. If Wine cannot be readily had, Ale boiled with Cinnamon, Cloves, and a little Sugar, may be used. Draughts of this kind must be taken, till the Sweat be kept up for an Hour, or half an Hour, or according to the Circumstances of the Patient. It can scarcely be imagined, how expeditious and effectual this Method of Cure is, in the most violent Degree of this Disorder, even when it tends to a Gangrene. In milder Degrees of Chilblains, those Medicines may not, indeed, be absolutely necessary, but are, at the same time, extremely beneficial.

When the Chilblain tends to Suppuration, it ought to be treated like other recent Abscesses. First cleanse the Wound with a digestive Ointment, or the Unguentum Ægyptiacum ;



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then dress it with the Oil of Eggs, and of Wax, and the *Peruvian* Balsam, or the Essence of Aloes and Myrrh; and, lastly, apply a Plaster of Lead, or of Litharge. The Oil of Myrrh per Deliquium may be beneficial; and, also, burnt Mice, if we may believe the *Ephemerides Naturæ curiosorum*. Lastly, Lime-water mixed with camphorated Spirit of Wine, may be, also, used very advantageously, if a Compress dipt in it be applied to the Ulcer, either alone, or after the Application of the Medicines above-recommended. But, if a Gangrene or Sphacelus appears, it must be cured as such.

Those who are subject to Chilblains every Year towards Winter, in order to prevent their Return, carefully anoint the Parts affected with Petroleum, or Oil of Turpentine, during the Winter: Or, if the Chilblains begin to appear again, apply to the morbid Heel or Finger, a Bladder dipt in the fore-mentioned Oils; but the Cold itself should always be carefully avoided, or defended against, with proper Cloths or Coverings. Consult *M. A. Severinus Diff. de Pernionibus in Lib. de Abscessibus. Heister's Surgery*.

**PEROLIDUS.** A Term used by *Paracelsus*, and *Helmout*, by which they understand the extreme Circumference of the Body of Air surrounding the Earth.

**PERONÆUS MUSCULUS.** A Name for three different Muscles, the first of which is the

**PERONÆUS MEDIUS, VULGO PERONÆUS ANTICUS.**

This is a long Muscle, situated anteriorly on the middle Part of the Fibula.

It is fixed above by fleshy Fibres, to more than the middle third Part of the anterior or Outside of the Fibula, and to the neighbouring Part of the Aponeurosis Tibialis.

It is likewise fixed to a Production from the Inside of that Aponeurosis, which runs to the upper Part of the Tibia, and there serves for a middle Septum, between this Muscle and the Extensor Digitorum longus.

From thence it runs down, and forms a Tendon, which, going in the Direction of the oblique Line on the Fibula, passes behind the external Malleolus, and then through an annular Ligament common to it, and to the Peronæus Maximus; and is afterwards inserted in the Tuberosity, at the Basis of the fifth Metatarsal Bone, sending off a small Tendon to the first Phalanx of the little Toe.

**PERONÆUS MINIMUS.**

This is a small Muscle, commonly thought to be a Portion of the Extensor Digitorum longus, though it is easily separable from it.

It is fixed by fleshy Fibres in the lower Half of the Inside of the Fibula, between the two oblique bony Lines, on one Side of the lower Part of the Extensor Digitorum longus, to which Muscle it is simply contiguous.

From thence it runs down, contracting in Breadth, and passes, with the Extensor Longus, through the common annular Ligament, forming a flat Tendon; which soon separates from those of the Extensor, and is inserted near the Basis of the fifth metatarsal Bone.

It is distinguished from the two other Peronæi, by a Septum, or Production of the ligamentary Aponeurosis of the Tibia.

The Peronæus Medius bends the Foot; and hinders the Leg from falling back, in the same manner as the Tibialis Anticus. By its Insertion in the Tuberosity of the fifth Metatarsal Bone, it turns the Sole of the Foot outward, at the same time that it bends it, when it acts without the Assistance of the Tibialis Anticus; the Co-operation of which Muscle is likewise necessary to enable it to counterbalance the Force with which the Leg would be carried backward, when we stand upon one Foot.

The Peronæus Minimus is an Assistant to the Medius, in the Flexion of the Leg, in preserving the Equilibrium of the Leg, and in turning the Sole of the Foot outward; neither can it perform the first two of these Motions uniformly, without the Co-operation of the Tibialis Anticus.

The uniform Flexion of the Foot furnishes an Example of all the three Kinds of Levers: Of the first, when we bend the Foot, while off the Ground, in which Case the Fulcrum is in the Articulation between the two Extremities of the Lever: Of the second, when we walk upon the Heels, or Toes; for then the Weight is between the Power and the Fulcrum: Of the third, when we raise a Weight by the Toes; for then the Power is between the Weight and the Fulcrum.

**PERONÆUS MAXIMUS, VULGO PERONÆUS POSTERIOR.**

This is a long penniform Muscle, lying on the Fibula.

It is fixed above, to the anterior and outer Part of the Head of the Fibula, and to a small Portion of the Head of the Tibia; then to the Outside of the Neck of the Fibula, to the upper Half of the external Angle of that Bone, and to the Aponeurosis Tibialis, which, at that Place, makes a Septum between this Muscle and the Extensor Pollicis.

From thence running a little backward, according to the Direction of the Bone, it turns a considerable Tendon, which, run-

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ning down behind the external Malleolus, passes through a kind of hollow Groove, and through an annular Ligament, common to it, and to the Tendon of the Peronæus Medius, which lies before it: It passes, likewise, through an annular Ligament on the outer and anterior Part of the Os Calcis, and under the small lateral Tuberosity sometimes found there.

Afterwards running through the oblique Groove, in the lower Side of the Os Cuboides, it is inserted in the Side of the Basis of the first Metatarsal Bone, and, also, a little in the Basis of the Os Cuneiforme Majus.

The fleshy Body of this Muscle cannot always be distinguished from that of the Peronæus Medius.

When the Peronæus Longus, or Maximus, acts alone, it may extend the Foot, hanging freely in the Air; but, then, this Extension is obliquely outward. Together with the Gastrocnemii and Soleus, it likewise changes their Direction to an oblique Extension outward.

This Muscle, and the Tibialis Posticus, acting without the Gastrocnemii and Soleus, may extend the Foot almost directly; but they can overcome but a very small Resistance. When it acts with the other two Peronæi, the Sole of the Foot is turned more or less directly outward, towards the external Malleolus. *Winslow's Anatomy*.

**PERONE.** The Fibula. A Bone in the Leg. See *CRUR*.

**PERPESSIO**, in the Spagiric Phrase, is the Treatment of Metals by Fire.

**PERPETUATIO**, in Chymistry, is a Reduction of any moveable and volatile Substance to a State of Rest.

**PERSEA.** Offic. C. B. P. 441. J. B. 1. 169. Raii Hist. 2. 1552. *Persea Arbor*. Ger. 1606. *Persea Arbor Clusii*. Park. Theat. 1514. *Prunifera Arbor, fructu maximo, pyriformi, viridi, pericarpio esculento butyraceo, nucleum unicum maximum, nullo ossiculum tectis, cingente*. Cat. Jamaic. 185. Raii Dendr. 48. *Abavacaquahuil seu Arbor Querciformis butyraceo fructu*. Hern. 89. Jons. Dendr. 424. *Abavacaquahuil*. Laet. 226. *Pyro similis fructus in Nova Hispania nucleo magno*. C. B. P. 439. *Pyri facie Aguacat*. J. B. 1. 107. *Nicaragua pomum Nuce rotunda*. Ejusd. 1. 210. *Mala Americana pyri facie*. C. B. P. 433. **SPANISH PEAR.**

The Tree has the Appearance of a Pear-tree, is wide-spreading, and always green; the Leaves are like those of the broad-leaved Laurus: The Flowers, pretty like those of the Laurus Hexapetalus, and growing in Clusters: The Fruit, at first, resembles a Plum; afterwards becomes of an oblong Figure, like a Pear, of a black Colour, and a pleasant Taste, and containing an Heart-shaped Kernel, in Taste much like a Chestnut, or sweet Almond.

The Persea-tree is mentioned by *Theophrastus*, *Strabo*, *Pliny*, *Dioscorides*, *Plutarch*, and *Galen*. Some will have the Persea to be the same with the *Persia Malus*; but they are refuted by *Scaliger* at large, though *Theophrastus* calls both those Trees *Persea*. The Description given of it by this last Author differs in many Characters from that of *Clusus*, given above, who never saw but one Tree, and that near the City *Valentia* in *Spain*, which was supposed to be brought thither from *America*.

Some Authors have written, as *Dioscorides* tells us, that this Tree, in *Persia*, is poisonous; but, being transplanted into *Egypt*, has its Nature so changed and meliorated, as to produce a Fruit fit for eating; *Galen* writes the same. *Pliny* says, that some industrious Authors have written, that this Tree in *Persia* has its mortal Poison attended with tormenting Pains; but, being by the *Persian* Kings transplanted to *Egypt*, in order to be employed as a Punishment, had its Qualities mitigated by the Soil: But this Relation is denied, he tells us, by the most learned Writers, who say, that the Persea-tree was planted at *Memphis*, by *Perseus*. *Plin. Hist. Nat. Lib. 14. Cap. 13*. This last Opinion seems to me, says *Ray*, the most probable, though I do not deny, but there may be in *Persia* such a poisonous Tree, of a distinct Species from the *Egyptian* Persea; especially since *Rauwolfius* writes, that a *Persian* Merchant informed him of the poisonous Fruit of such a Tree, called by them *Sepha*, which, for that Reason, they would not meddle with. *Raii Hist.*

The Persea is a Native of *Jamaica*; the Fruit is good for the Stomach: And we are told by *Dioscorides*, that the Powder of the dried Leaves stops Hemorrhages, being sprinkled on the Part.

The *Laurus Indica Aldini* is the Persea of *Clusus*.

Under the Head of **PERSEA**, *Ray* reduces

*Persica Nuci similis Fructus Nucleo venenato Monardis*. J. B.

This Fruit is of a cathartic, or rather of a septic Quality: For a certain *Indian*, as *Monardes* tells us, cured a female Negro, whose Legs were full of malignant and inveterate Ulcers, with the Powder hereof sprinkled on the Parts, which consumed the putrid Flesh; with the same Powder put upon Cotton, and applied to the Ulcers, he incured and cicatrized them. This Fruit is very common in the Island *Margarites*, and commonly eaten: It is of the Size of an *Adam's Apple*, or Orange, and contains a Nut like the Stone of a Peach, which, burnt to Powder, is good for the Purpose before-mentioned. The Kernel it contains is of so noxious and deleterious a Quality, that, eaten, it is present Death.



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Death to Man or Beast, without Hopes of a Remedy, as if it were Sublimate, or some Corrofive. It is probable, says Ray, that this Fruit, is the same with that of the *Manga Silvestris*, or *Mangas bravas*, described by *Acofta*. *Raii Hist. Plant.*

## PERSICA.

The Characters are;

The Leaves are narrow and oblong; the Calyx is monophyllous, deeply cut into five or six Segments, expanded and hollow. Within the Calyx is seated a rosaceous, pentapetalous or hexapetalous Flower, (the Petals growing on the Inside of the Margin of the hollow Calyx) and furnished with thirty Stamina: The Ovary is seated in the very Bottom of the Calyx, and is furnished with a long Tube, adorned with a globular scabrous Apex, and becomes a pulposus Fruit, almost globous, fulcated or furrowed lengthwise, and inclosing a Stone, adorned with little Pits and Cavities deeply cut, and containing, for the most part, only a single oblong Kernel: The Pedicle is very short.

*Boerhaave* mentions six Species of Persica; which are,

1. Persica; molli carne, & vulgaris, viridis & alba. C. B. P. 440. *Tourn. Inst.* 624. *Boerb. Ind. alt.* 2. 243. *Persica malus*. Offic. Ger. 1258. Emac. 1447. Park. Parad. 580. J. B. 1. 157. *Raii Hist.* 2. 1515. THE PEACH-TREE.

The Peach-tree is known to be a Tree of no great Bigness, being here, in *England*, generally planted against Walls: The Leaves are long and narrow, and serrated about the Edges: The Flowers consist of five pale-purple Leaves: The Fruit is covered with a downy Coat, full of pleasant juicy Pulp, having an hard reddish Stone full of wrinkled Cavities: It is planted in Gardens, and flowers in *March*, or the Beginning of *April*, and the Fruit is ripe in *August* and *September*.

The Flowers are only used in Physic; they are opening and gently purging, and principally given to Children, to carry off thin ferous Humours, and to kill Worms. The Fruit is cooling and moistening, grateful to the Palate, but subject to putrefy, and cause Surfeits.

The only officinal Preparation is *Syrupus Florum Persicorum*. *Miller's Bot. Off.*

*Galen* and *Paulus* condemn all Kinds of Peaches, as of bad Juice, and hurtful to the Stomach; for which Reason they advise to eat them at the Beginning of Repasts, before other Food, and to drink no Water, but pure Wine, after eating them. But I see no Reason, says Ray, why the Judgment of *Pliny* and *Dioscorides*, that Peaches are good for the Stomach, procure a good State of the Belly, and that nothing more innocent can be eaten, should be wholly condemned and rejected: Nor indeed it is probable, that a Fruit so savoury and delicious, and the most pleasing to our Palate of all Summer-fruits, as if Nature itself had recommended it to our Choice, should be quite noxious and unwholesome. We ought, however, to be careful in chusing these Fruits, and to observe a Measure in eating them. And, therefore, *Amatus* thinks, that what has been said by *Galen*, and others, concerning the bad Effects of Peaches, ought to be understood of those which have a very soft Pulp: For the Case, he says, is quite otherwise with the *Duracina*, (Peaches of an hard and firm Pulp) which emit a most grateful, comfortable, and reviving Smell; for these have a most delicious Savour, mixed with something of Austerity, which is agreeable and strengthening to the Stomach; and all Persons of Quality, in *Spain* and *Portugal*, and those of the most delicate Palates, eat them after Meals, though not before they are infused in Wine; and find no ill Effects from them.

Preserved Peaches are extremely grateful to sick Persons, especially to such as are afflicted with Thirst, and Driness of the Tongue, for they strengthen at the same time they refrigerate; whence they are of excellent Service in all hot Distempers. *Brassavola* used to give his Patient a Peach or two roasted under the Ashes. *Amatus* affirms it to be a most delicious Food, and extremely grateful to sick Persons. The Leaves, on account of their Bitterness, being boiled in Beer, or Milk, destroy and expel Worms in Children. *Galen* says, that they work the same Effect, being bruised, and applied to the Navel. *Parkinson* affirms, that they purge gently, it taken in a sufficient Quantity; the Flowers operate in the same manner, and more effectually than Damask Roses; for which Purpose there is prepared of them a Conserve, to be taken chiefly in the Morning fasting; and a Syrup, also, is prepared thereof, which is very effectual for the same Intentions. The recent Flowers, says *Matthioli*, not only purge, but provoke Vomiting; and, eaten in Salads, prove Hydragogues in Dropsies; but not without disordering the Patient: The distilled Water is a Cosmetic. The Gum of this Tree is commended for Fluxes of the Belly, the Stone, Impetigo, Tumors of the Fauces, Roughness of the Windpipe, Spitting of Blood, Disorders of the Lungs, and the Dysentery. *Matthioli* recommends the Kernels for the Gripes, and to prevent Ebriety, being taken to the Number of six or seven before-hand; and, for the Alopecia, being bruised, and boiled in Vinegar, to a Pap-like Consistence. The Oil of the bruised Kernels, being rubbed on the Temples, procures Sleep, and eases the Hemisrania, or Megrism; drank, or used in Clysters, it cures the Colic; and, taken to the Weight of four Ounces, it gives Relief under the Ilac Passion, and the

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Stone. The Water of fifty Kernels of Peaches, with that of 22 hundred Kernels of Cherries, and an Handful of Flowers of Elder, macerated in three Pints of Malmsey, then buried for ten Days under Ground, in an earthen Pot, and afterwards distilled; expels Stones from the Kidneys in a surprising manner, as we are assured by *Matthioli*. *Raii Hist. Plant.*

2. Persica; vulgaris; flore pleno. T. 624.
3. Persica; malus; Swollana. *Munting. Prax.* 1. 43.
4. Persica; Africana; flore incarnato, simplici. T. 625. *Amygdalus Africana, vulgô.*
5. Persica; Africana; nana; flore incarnato, pleno. T. 625.
6. Persica; succo quasi sanguineo. C. P. B. 440. *Boerb. Ind. alt. Plant. Vol. 2.*

It is called *Persica*, from *Persia*, the Country whence it was first transplanted. An Infusion of the Leaves, after the manner of Tea, is purging and opening, and kills Worms; as do, also, the Flowers. The Fruit is cordial, pectoral, and moistening: The Juice is of Service in burning Fevers: The Kernel is anticolical, and antinephritic: The expressed Oil thereof is good for the Ringing of the Ears. *Hist. Plant. adscript. Boerhaav.*

There is no Tree more common than the Peach-tree; and yet it has furnished *Salmasius* with Matter enough for a large Dissertation. The *Greeks*, it seems, had learned by a certain Tradition, that the *Persians*, who were Enemies to the *Egyptians*, had consulted to convey secretly into *Egypt*, and there to plant, a certain Tree, called *Persea*, from the Country whence it came, the Fruit of which was of a poisonous Quality: They supposed that the *Egyptians*, tempted by the Beauty of the Fruit, could not be prevented from eating it: They did indeed make no Scruple to eat it; but the Event was quite contrary to what the *Persians* expected from it; for the Goodness of the *Egyptian* Soil had so changed the Nature of the Fruit, by removing its noxious Quality, that the *Egyptians* could eat it with Safety. The *Greeks* and *Romans*, says *Salmasius*, who wrote since *Theophrastus*, as *Dioscorides* and *Pliny*, believed that the *Persea* of *Egypt* was different from the Persica; because they found, that the Description which *Theophrastus* had given of the first did not agree to the latter. But they did not consider, that there was no Peach-tree in *Greece*, in the Time of *Theophrastus*; that this Tree was brought thither very late, and from thence into *Italy*, and, consequently, that *Theophrastus* spoke of it as of an exotic Tree or Fruit. *Salmasius* concludes, that the *Persea* and Persica are the same Tree, because those who make them different, among whom is *Dioscorides*, give a good Description of the last, but by no means of the former, only saying, that it is a Tree peculiar to *Egypt*; which is a Proof, he says, that they had never seen that pretended Tree; or only spoke of it by Hearsay. The only Difference, according to *Salmasius*, between these two Names of the Tree is, that the first was in Use among the ancient *Greeks*, and the other among the more modern *Greeks*, as well as the *Romans*: He adds, that what has made the *Persea* of *Theophrastus* be mistaken, is, that this Author, instead of describing all the Species of the Peach-tree, has only described the Apricot-tree, which was, also, called *Persea*; but, for Distinction, was afterwards named *Persea præcox*; and by the *Latins* simply *Præcoqua*; whence the later *Greeks* formed their Βερικοκκα (*Bericocca*); whence comes the *French Abricots*. The *Persea*, or Persica, was, also, called *Rhodocinea* and *Rhodacina*, because the first of these Trees had been planted at *Rhodes*, where *Theophrastus* remarks, that it only flower'd, and bore no Fruit. But that Philosopher might be misinformed, the Fruit in his Time being as yet a great Rarity in *Greece*; perhaps too the Soil, where it was first implanted, was improper for it. It is probable, however, that those Trees thrived very well afterwards in that Island, and were able to furnish *Greece* and *Italy* with Plants, where the Name *Rhodacina* was still preserved; whence, by a Transposition of Letters, which is very common, are formed the Names *Doracina* and *Duracina*, whence the *French Dureau*.

The Peach-tree has, also, been taken for the Lemon-tree, not for any Similitude between those Trees, or their Fruit; but only because the Lemon-tree was not only called *Malus Medica*, but *Malus Persica*. *Le Clerc, Hist. de la Med.* See *PERSEA*.

## PERSICARIA.

The Characters are;

The Flowers are disposed in Spikes, at the Top of the Stalks and Branches: The Calyx is quadrifid, though some take it for a tetrapetaloid Flower: The Stamina are six in Number: The Ovary, in the Centre of the Calyx, is compressed, of an oval or orbicular Form, and furnished with a bifid fimbriated Tube: The Seed is flat, and ovally acuminate. A Membrane surrounds the Stalk, at the Rise of the Leaves, and small Branches, opposite to the Leaves.

*Boerhaave* mentions eleven Species of Persicaria; which are,

1. Persicaria; mitis; non maculosa. C. B. P. 101. M. H. 2. 588.
2. Persicaria; mitis; non maculosa. C. B. P. 101. *Flore albo. Persicaria, Antverpiensis, floribus albis.* Lob. Obs. 171.
3. Persicaria; mitis; maculosa. C. B. P. 101. M. H. 2. 588. *Persicaria, mitis.* J. B. 3 779. SPOTTEID ARSMARKT.

*Dale* seems to make this and the first Species the same Plant.

This



This Arsmart has many round Stalks, two Feet high, or more, full of Branches, having their Joints thick and swelling, and covered with a thin Film, or Skin. The Leaves grow alternately, and are long and sharp-pointed, but broader in the middle, and larger than those of the *Perficaria aurens*; seu *Hydropiper*: They are smooth, and have a dark-brown or blackish semilunar Spot in the middle of each. The Flowers grow at the End of the Branches, in thick round pale-red Spikes, being small and staminate, containing flatish angular, sharp-pointed shining Seed. The Root is a Bush of Fibres; it grows in moist Places, and by Pond and Dutch-rides; and flowers in July. The Leaves are used.

They are said to be of a cooling Nature, and good for hot Tumors, Inflammations, Impostumes, and green Wounds, though they are but seldom used. *Miller's Bot. Off.*

*Fuchsius* has affirmed, that it is of a very astringent Taste; *Casalpianus* found it acerb; *Tragus* and *Lobel* sourish; for my Part, I have found nothing but a little Astringency. This Plant gives a pretty deep-red Colour to blue Paper, which makes us conjecture, that its Salt resembles Sal Ammoniac, loaded with a great deal of Earth, and joined with a little Sulphur; thus this Plant is astringent, deterfive, and vulnerary. It yields a little volatile concrete Salt by the Analysis: The Decoction of the whole Plant is good for a Looseness, and for the Diseases of the Skin. *Martyn's Tournefort.*

4. *Perficaria*; mitis; maculosa; caulibus & ramis nodosissimis, rubris.

5. *Perficaria*; mitis; cum maculis Ferrum equinum referentibus. T. 509.

6. *Perficaria*; urens; seu *Hydropiper*. C. B. P. 101. *Boerb. Ind. a. 2. 87. Perficaria non maculata, Hydropiper. Offic. Perficaria acris five Hydropiper. J. B. 3. 730. Perficaria vulgaris acris five Hydropiper. Rai Hist. 1. 182. Synop. 58. Perficaria vulgaris acris five minor. Park. 856. Hydropiper. Ger. 361. Emac. 445. Patinoba Lusitanis pulchra. Pl. 221. An Schoenoma-molela mucosa. Fl. M. 12. 147. Tab. 76? LAKEWEED, ARSMART, or WATER-PEPPER.*

This Arsmart grows not so much branched as the *Perficaria mitis maculosa*; the Leaves are long, and proportionably narrower, and more like the Leaves of the Peach-tree, whence it takes its Name *Perficaria*; but they are not serrated about the Edges, and they want the Spot that is in the Leaves of the mild Arsmart, and they have a very hot biting Taste, burning the Tongue like Pepper. The Flowers grow in long, slender, loose Spikes, of a paler Colour than the *Perficaria*; mitis; maculosa; but containing like Seed: It grows in like Places with that, and flowers about the same time.

This has been accounted an extraordinary Plant against the Stone, Mr. Boyle having, in his Book of the Usefulness of experimental Philosophy, given to the distilled Water of this Plant a mighty Character for its Virtues against that Distemper. It is commended, also, as very cleansing, and good for old stubborn Ulcers. *Miller's Bot. Off.*

Arsmart is of a very acrid and burning Taste, and gives a lively Tincture of red to the blue Paper. It is full of acid Sulphur and Earth; its Salt resembles that which results from the Mixture of the Salt of Coral with the Sal Ammoniac, loaded with a great deal more Acid than ordinary.

For this Plant, by the chymical Analysis, yields a great deal of Acid, Oil, and Earth, and a little volatile concrete Salt. Arsmart is very deterfive and vulnerary; and it is used in Glysters, for the Dysentery and Tenesmus. They give, at the same time, a Dram of this Powder in a Bolus, or mixed with Wine, thickened into a Syrup, with Sugar. Some carry this Plant in the Shoes; but it were better to boil an Handful of it in lean Broth, and strain it through a Linen Cloth, adding half a Dram of chalybeated Tartar, for the Jaundice and green Sickness. *Martyn's Tournefort.*

It is evidently of an hot and dry Quality, and is principally used externally for Wounds, indurated Tumors, inveterate Ulcers, and the like. *Schroeder.* For a pained, hollow Tooth, take Water-pepper, and put it into the Cavity. With this Remedy *J. Haurmus* cured a Woman much afflicted with the Tooth-ach. There is nothing found more effectual for expelling the Flies; for whatever Wounds or Ulcers in Horses or Cattle are rubbed with the Juice of Arsmart, they remain secure from the Injures of the Flies. *Tragus. Raii Hist.*

7. *Perficaria*; frutescens; maculosa; Virginiana; flore albo & carnoso; Parkinsonii. *Theatr.* 857.

8. *Perficaria*; minor. C. B. P. 101.

9. *Perficaria*; major; Lapathi foliis; calice floris purpureo. T. 510.

10. *Perficaria*; Salicif. folio; perennis. H. L. 488. *Potamogeton, Salicif. folio. C. B. P. 193. Potamogeton. Dod. p. 582.*

11. *Perficaria*; Orientalis; Nicotianæ folio, calice florum purpureo. T. Cor. 38. *Cornel. Kar. 43. Ic. & Descrip. T. Voy. 2.*

316. *Boerb. Ind. alt. Plant. Vol. 2.*

It is called *Perficaria*, because its Leaves resemble those of the Peach; the both Species is called *Hydropiper*, from *Hydro* Water, and *piper*, (*Peperi*) Pepper, that is, Water-

pepper; because it is an aquatic Plant with the Taste of Pepper.

The first Species is highly commended by Mr. Boyle, as an incomparable Lithontriptic: An *English* Nobleman, he says, cured every body of the Stone with the Juice and distilled Water of this Herb, and prepared every Year a vast Quantity of the distilled Water for the Use of the Poor. I have, also, try'd this Remedy, but without Success. A Decoction of the Leaves is of Service in the Diarrhoea, Dysentery, and all cutaneous Diseases. *Paracelsus*, observing an Impression of Spots on the second and third Species, pronounced them extraordinary Vulneraries, and asserted them to be an effectual Preservative for Horses against Galls and Attritions by the Saddle, being placed under the same. *Perficaria* is an astringent Vulnerary, and a Febrifuge; and is good for spitting of Blood, for immoderate Fluxes of the Hæmorrhoids, Menes, and the Fluor albus; the Leaves, bruised, and apply'd, repress an Hæmorrhage of the Nose. The sixth Species is a very burning Plant, and being chewed in the Mouth strikes the Tongue as it were Lightning. The Leaves, bruised, and apply'd to the Skin, raise an Inflammation and Exulceration, in manner of an Escharotic. This Herb deterges and depurates Ulcers, being mix'd with other Things of a more temperate Quality. It is heating, and, on account of its Acrimony, is temper'd with Raisins: Being thus prepared, it is of Service in the Dropsy, Jaundice, and all Obstructions of the Viscera. In Surgery it is a very good Medicine for discussing œdematous Tumors, if they be fomented with a warm Decoction of the Leaves. *Hist. Plant. adscript. Boerhaav.*

PERSICUS IGNIS. A Carbuncle, according to *Sennertus*. But *Avicenna* makes a small Distinction betwixt a Carbuncle and *Ignis Persicus*, calling that Species of Carbuncle attended with Pustules, and Veleations, an *Ignis Persicus*.

PERSISTENS FEBRIS. A regular intermitting Fever, the Paroxysms of which return at constant and stated Hours.

PERSIUM. The Peach-tree. *Oribasius, Medic. Collect. L. 1. C. 63. See PERSICA.*

PERSOLATA. The same as *Personata*.

PERSONATA. A Name for the *Lappa*. See *BARDANA*.

PERSPIRATIO. Perspiration. Having given an Account of Perspiration, and the Organs destin'd for this Secretion, under the Article CURIS, I shall, in this Place, farther remark, that Perspiration is less in Women, than in Men; that a redundant Excretion of the perspirable Matter induces great Weakness, in proportion to its Excess, Faintings, and sometimes sudden Death. But if Perspiration is diminish'd, or utterly obstructed, the extreme cutaneous Vessels become dry, and are obliterated; and hence the Vessels, and Glands, destin'd for the Discharge of Sweat, and the oily Humour mention'd under the Article CURIS, are dry'd; in consequence of which, the Circulation of the Blood is alter'd, the acrid perspirable Matter is retain'd, and Putrefaction, Crudities, Fevers, Inflammations, and Apostemations, ensue. *Boerhaave's Institutes.*

I must, farther, observe, that when the Orifices of the innumerable perspiring Vessels are obstructed, the Blood propel'd from the Heart meets with a stronger Resistance: Hence the Circulation labours, and must quickly cease, unless the Heart contracts itself with greater Force. But because, when the perspirable Matter is retain'd, the Quantity of the circulating Fluid is increas'd, on this Occasion the Blood returns more frequently to the Left Ventricle of the Heart: Hence the Contraction of the Heart is more frequent; and, in consequence of the stronger, and more frequent, Contraction of the Heart, there is a greater Attrition betwixt the Solids and Fluids, and a greater Heat, which we call a Fever.

PERTICE CASMIANA. The Name of a compound Medicine, in *Marcellus Empiricus, C. 20.*

PERTURBATIO ALVI. A Diarrhoea.

PERTUSSIS.

'Tho' this Word, according to its natural and most genuine Signification, imports no more than a violent and terrible Cough; yet it is generally appropriated to that Species of Cough, call'd the Chin-cough, a Disorder principally incident to Infants and Children; especially in the Spring and Autumn, at which Seasons it is generally epidemical. The Patients, labouring under this Disorder, have frequent and violent Paroxysms of Coughing, in which the Organs of Respiration being not only oppress'd, but, also, spasmodically affected, variously interrupt, suspend, and pervert their respective Functions. But for the most Part, the Diaphragm convuls'd, either of it, self, or by the Impulse of other Parts, so long protracts sometimes the Systole, and at other times the Diastole of the Heart, that Inspiration, or Expiration, being for a time obstructed, the Breath, so subservient to Life, can hardly be drawn; in consequence of which, the Patients are, as it were, suffocated; and, by reason of a Stagnation of the Blood, contract a kind of Blackness of Countenance; and if by chance the Organs, subservient to these Purposes, should not be so strongly convuls'd, as to hinder the free Coughing of the Patients, they are nevertheless forc'd to cough in a violent manner, and till their Strength is worn out.

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The concurrent Cause of a Chin-cough seems to consist in these two Circumstances, that there is a frequent and violent Irritation of the Lungs, by which they are almost continually stimulated to throw up the Matter, which proves uneasy to them, by Coughing; and that the moveable Parts of the Thorax, that is, the Nerves, and nervous Fibres, being previously dispos'd to Spasms, as often as they are thus irritated, excite not a regular, but generally a convulsive Cough, and induce some Indisposition opposite to the Function of Respiration.

The Matter which, in all Probability, stimulates the Lungs so frequently to coughing, is Serum, by reason of its too thin Texture continually secreted from the Mass of Blood, and affecting the Parts of the Thorax; because it is not only convey'd thro' the Tracheal Arteries into the Cavity of the Alveolar Arteria; but, also, copiously pour'd thro' the pneumonic Arteries into all the adjacent open Ducts.

The spasmodic Disposition of the moving Parts seems, as in other convulsive Disorders, to proceed from an heterogeneous and elastic Matter convey'd along with the nervous Fluid from the Brain through the Nerves into the moving Fibres of the Breast. For this Reason, when the Spirits, lodged in these Fibres, are excited to the violent Motions of Expiration, they fall into convulsive Motions.

As for the Prognostic of this Disorder, tho' a Chin-cough is rarely mortal, or very dangerous, yet it is not to be cured without the greatest Difficulty; and is frequently subdued and remov'd by a Change in the Season of the Year, rather than by Medicines.

The Measures taken for the Cure of other Coughs, are rarely effectual in removing this; for which Reason Nurses and Quacks use various Medicines of their own, such as Cup-moss, and its various Preparations exhibited internally; and, if any farther Cure is necessary, they put the Child into a Frigidity, in order to remove its Disorder. But, if all these Measures should prove ineffectual, they generally reject Ptilans, Syrups, Julaps, Decoctions; and other Medicines, whether pectoral, or of any other Nature, waiting, till the Disease either terminates spontaneously, or is cured by the succeeding Season of the Year.

Cup-moss, so far as can be collected from its Taste, is of an astringent Quality, and contains somewhat acrid Particles, which smell strongly of a volatile Salt. Hence we may conjecture, that its Use consists in fixing the Blood, allaying the Defluxions of Serum, and in removing the spasmodic Disposition of the Parts, by volatilizing the nervous Fluid. Cup-moss may be exhibited either in the Form of a Powder, a Decoction, or a Syrup: Thus,

Take of the Powder of Cup-moss, one Dram; and of Sugar-candy, one Scruple: Mix all together, and divide into three equal Doses; one of which is to be taken every Morning and Evening, in some proper Vehicle.

Or,

Take of Cup-moss, two Drams; of Milk of Sulphur, two Scruples; and of the Powder of Anise-seeds, one Scruple: Mix all together, and divide into six Doses; one of which is to be taken every Morning and Evening, in some proper Vehicle.

Or,

Take of Cup-moss, one Dram: Boil in a sufficient Quantity of Milk; strain the Milk, and drink it every Morning and Evening. For such as do not like Milk, or are injured by it, we may prepare a Decoction of Cup-moss, in Spring-water, that of Hyssop, or any other pectoral Water; two or three Ounces of which are to be drank twice a Day, edulcorated with Sugar, or some proper Syrup.

Or,

Take one Ounce of Cup-moss: Boil in two Pints of some pectoral Water, till Half of it is consumed; to the Liquor, when strain'd, add one Pound of Sugar-candy, and let the Whole evaporate in a gentle Bath-heat, to the Consistence of Sugar-candy.

Another empirical Method of curing the Chin-cough, when Medicines prove ineffectual, is, to fright the Child, by putting it in the Hopper of a Mill, which makes a terrible Noise, and the Aspect of whose Wheels is dreadful; and by this Method a Chin-cough is sometimes suddenly cured; the Reason of which undoubtedly consists in this, not only that the animal Spirits, being, by the Fright, forced into new Distractions, leave their former inordinate Motions, but, also, that the Matter producing the Spasms is, by such a Perturbation, either dissipated, or forced into other Nerves, where it proves less troublesome.

But a more rational, and, according to my own Experience, a more effectual Method of curing a Chin-cough, is to begin with Purging; for which Purpose,

Take of the Syrup of Peach-flowers, one Spoonful, and of hysteric Water, one Scruple: Mix together, and exhibit to the Patient, who must, at the same time, use a proper Regimen.

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Or,

Take of Calomel, six Grains; and of sulphurated Scammony, and Resin of Jalap, each three Grains: Reduce to a Powder, a small Quantity of which is to be exhibited to a Child of six Years old, the Dose being increased, or diminished, in proportion to the Age of the Patient. Let the Purge be repeated in six or seven Days.

If the Patient, as it frequently happens, is subject to Vomiting;

Take of Oxymel of Squills, six Drams; and of Salt of Vitriol, three Grains: Mix together, and exhibit to a Child of six Years old; and, according to this Proportion, the Dose is to be accommodated to Patients of other Ages. I have known an Emetic of this Kind, repeated every Morning for four or five Days successively, produce very happy Effects.

For the Cure of Chin-coughs, Veficatories are frequently used, and applied sometimes to the Nape of the Neck, sometimes behind the Ears, and at other times to the internal Parts of the Arms near the Axillæ; and, when the Blisters begin to heal in these Parts, others are to be excited in others.

Intead of Ale, the Patient ought to use the following Decoction for ordinary Drink.

Take of China-root, an Ounce and an half; of all the Species of Sanders, each an Ounce and an half; of the Shavings of Ivory, and Hartshorn, each three Drams: Infuse in six Pints of Spring-water, which is to be boiled to the Consumption of one half; adding an Ounce and an half of stoned Raisins, and three Drams of Liquorice.

Or,

Take of the Spirit of Gum Ammoniac, prepared with Sal Ammoniac, one Dram; of the Syrup of Cup-moss, three Ounces; and of hysteric Water, one Ounce: Mix all together, and give one small Spoonful for a Dose, every Morning and Evening.

Or,

Take of the Tincture of Sulphur, two Drams; of which mix three Drops, with one Spoonful of the Syrup of Cup-moss; and exhibit for a Dose every Morning.

In Children of hot Constitutions, who, in Coughing, are seiz'd with an intense Redness, or rather a Blackness, of the Face and Countenance, I have sometimes, with great Success, ordered two or three Ounces of Blood to be taken away, either by Phlebotomy, or Leeches; after which the following Preparation is to be used.

Take of well-clean'd live Millepedes, two Ounces; of the Powder of Anise-seeds, one Dram; of Nutmegs, half a Dram; and of the whitest Sugar, one Ounce: Bruise all together, and pour upon them, of Hyssop-water, six Ounces. Agitate them a little with a Pestle, and make a strong Expression of the Liquor, two or three Spoonfuls of which are to be exhibited twice a Day for a Dose. *Willis.*

In a Chin-cough, *Ettmuller* informs us, that the Patients cough so long, that at last they throw up a mucous Matter from their Stomachs by Vomit; after which they are relieved, for some time, perhaps, half a Day, when the Disorder returns in the same manner. A Chin-cough, like most other Coughs of Children, according to *Walschmied*, proceeds from a Disorder of the Stomach, where, according to *Dolans*, it is produced by a tough, viscid, and acid Matter lodged in its Coats. But, according to *Ettmuller*, a Chin-cough is sometimes produced by a certain Salt communicated by the Air to the tender Bodies of Children, and coagulating the Lymph, which, becoming acrid, and stagnating, or overflowing, affects the Larynx in such a manner, as to produce a Chin-cough, which, he says, can hardly be cured without the Use of Emetics, but may be easily removed by Vomiting, which may be promoted by means of a Feather dipt in Oil.

*Sydenham* informs us, that In Chin-coughs Bleeding affords more Relief than the Use of pectoral Medicines; and affirms, that they may be happily cured by Venesection alone, and due Purging, with mild Cathartics, the Doses of which are to be proportioned to the Age of the Patient. He, also, tells us, that in this Disorder Drinks, and liquid Aliments, ought to be taken in smaller Quantities than usual, whilst, in their stead, the Patient is moderately to use a mild Decoction of Sarsaparilla, China-root, Sanders, the Shavings of Ivory, and calcined Hartshorn, together with diuretic and antispasmodic Ingredients. He, also, tells us, that many have been relieved by the Decoction, or Syrup, of Castor and Saffron, as, also, by a Decoction of the Roots of male Piony, Mistletoe, and Hyssop.

¶

Doctor



# PER

Doctor Fuller, in his *Pharmacopœia Extemporanea*, orders the following Preparation for the Chin-cough.

Take of well-cleaned live Millepedes, two Ounces; of the Powder of Anise seeds, one Dram; of Nutmeg, half a Dram, and of white Sugar, one Ounce: Bruise all together, and pour upon them of Penroyal-water, six Ounces; and of the compound Waters of Bryony and Piony, each one Ounce: Make a strong Expression, and of the expressed Liquor exhibit one Spoonful after every Paroxysm of Coughing, till the Disorder is removed.

Doctor Cheyne, in his Treatise of the Gout, informs us, that a Spoonful of the following Syrup, exhibited at a time, and repeated, infallibly cures the Chin-cough.

Take of Millepedes, a sufficient Quantity; immerse them in White-wine, express the Juice, and add a sufficient Quantity of Sugar to make a Syrup.

For the Cure of a Chin-cough, Turnep-broth is much recommended by old Women and Nurses; and a proper Quantity of Sperma Ceti, in common Broth, is said to be an admirable Remedy for this Disorder. The Flesh of fry'd Mice, eaten, is, also, among the common People, accounted a Specific: And Baglivi informs us, that the Moss which grows upon Trees, especially on the Oak, is from Experience found to be, of all others, the most effectual Cure for a Chin-cough. The *Aurum Mosaicum* is greatly recommended by some for the Cure of this Disorder, but ought only to be exhibited to such as are pretty far advanced in Age. The Oil of Sulphur by the Bell, the *Jalapium Moschatum*, and the *Syrupus ad Tussim Convulsivam*, are sometimes used with Success. Some order fresh Whey to be used for common Drink.

PERVERSIO. The same as DIASTREMA.

PERVIGILIUM. Watching, or Want of Sleep; a Symptom very common in Fevers, and always of bad Pre-  
 RETOS.

PERVINCA.

The Characters are;

The Branches are long and creeping; the Calyx is monophyllous and quinquefid, being divided into five long slender Segments. The Flower is monopetalous, and much in the Form of a Salver, deeply cut into five Lobes, and furnished with five Stamina adorned with elegantly bearded Heads. The Ovary seated in the very Bottom of the Calyx, between two lateral Placentæ, is bifid, and from the Centre of its Apex shoots forth a slender cylindrical Tube, expanded at the Top into a Circle, from whose Centre rises a beautifully plumous Apex; the Ovary at last becomes a Fruit consisting of two Pods, which contain oblong sulcated, and almost cylindrical Seeds.

Boerhaave mentions eight Species of *Pervinca*; which are,

1. *Pervinca*; vulgaris; latifolia; flore cœruleo. *Tourn. Inst.* 119. *Boerb. Ind. A.* 311. *Clematis Daphnoides major* C. B. P. 302. *Raii Hist.* 2. 1091. *Synop.* 3. 268. *Clematis Daphnoides major flore cœruleo*. J. B. 2. 132. *Clematis Daphnoides latifolia five Vinca Pervinca major*. Park. Theat. 380. *Clematis Daphnoides*. Ger. 747. *Clematis Daphnoides five Pervinca major*. Emac. 894. THE GREATER PERIWINKLE.

It grows on Banks by the Sides of Ditches, but rarely flowers, in April; and it agrees in Virtues with the lesser or common Periwinkle, and may be used in its stead.

2. *Pervinca*; latifolia, variegata. T. 120. *Clematis Daphnoides major, flore variegata*.

3. *Pervinca*; vulgaris; angustifolia; flore cœruleo. *Tourn. Inst.* 120. *Boerb. Ind. A.* 311. C. B. P. 301. *Raii Hist.* 2. 1091. J. B. 2. 130. *Vinca Pervinca*. Offic. Ger. 747. *Vinca Pervinca minor*. Ger. Emac. 894. *Raii Synop.* 3. 268. *Vinca Pervinca vulgaris*. Park. Theat. 380. *Clematis Daphnoides, Vinca Pervinca*. Chab. 118. PERIWINKLE.

Periwinkle, from a stringy, creeping, fibrous Root, sends forth slender, smooth, weak Stalks, having two oval, smooth, shining-green Leaves, set opposite at a Joint. The Flowers grow single at a Joint, on long Foot-stalks, usually purple, sometimes white, in Shape like the Flowers of Jessamine, but more round-pointed, which are sometimes, but very rarely, succeeded by two long and slender Pods; it grows in shady Banks, and dry Ditches, and flowers in Summer. The Leaves are used.

This is a good vulnerary Plant, and of frequent Use in Wound-drinks, for Bruises, Contusions, inward Bleeding, and Watting, Spitting of Blood, the Excess of the Catamenia, and the Fluor Albus. *Miller's Bot. Off.*

This Plant is bitter, and gives a considerable Tincture of Red to the blue Paper; it is very likely, that the Oil and Earth predominate in the Periwinkle. Its Salt resembles Alum; but it partakes a little of the urinous Salt, and is like the Alum, with which they mix some Urine, to make it crystallize the better. For,

\* Περὶ, προσβλητὰ, κολλήρια (*Pesti, Prostheta, Collyria*); they were, also, call'd περιπλεκτὰ (*Periplectota*), from their Figure; but that Word is not to be found in *Hippocrates*.

# PES

By the chymical Analysis, we obtain from this Plant, besides several acid Liquors, a great deal of Earth and Oil, and very little volatile Salt. Periwinkle is vulnerary, astringent, and febrifugous. For spitting Blood, the immoderate Flux of the Piles, the Terms, or the Whites, pour two Quarts of boiling Water upon three Handfuls of the Leaves of Periwinkle, cover the Pot, remove it from the Fire, and give the Infusion to drink by Glass-fulls. Its Conserve and Extract have the same Virtues. For Bleeding at the Nose, stop it with these Leaves bruised. Milk curdled, with the Decoction of Periwinkle, is very good for the Phthisic: This Milk is prescribed for the Dysentery, and a Gargarism is made of it for the Diseases of the Throat. For the Dropsy they distil the Milk, after having macerated in it a whole Day the Leaves of Periwinkle, Tansey, and Agrimony. This distilled Milk is a much easier Medicine, than the curdled Milk. *Martyn's Tournesfort.*

The Leaves of Periwinkle, held in the Mouth, stop Bleeding at the Nose, as we have frequently seen try'd, says *Coffens, Lib. de Stirp. Differ.* The fresh Leaves, spread upon coarse and thick brown Paper, and well-matted and pressed together, then covered with combed Flax, and afterwards suffumigated with Frankincense, being, by the Advice of an old Woman, apply'd to a tumorous Swelling, dissolved it in a short time, after it had been, for a whole Year, under the Treatment of a learned Physician, without Effect. The old Woman had, before this, with the same Medicine, cured another, whose Case was reckoned desperate. *Raii Hist. Plant.*

4. *Pervinca*; vulgaris; angustifolia flore albo. T. 120. *Clematis, daphnoides, minor, flore candido*. C. B. P. 301. *Clematis, daphnoides, flore albo simplici*. J. B. 2. 130.

5. *Pervinca*; vulgaris; angustifolia; flore rubente. T. 120. *Clematis, daphnoides, minor, flore rubente*. C. B. P. 301. *Clematis, daphnoides, flore purpureo, simplici*. J. B. 2. 130.

6. *Pervinca*; vulgaris; angustifolia; flore pleno, saturate purpureo. T. 120. *Clematis, daphnoides, flore purpureo, pleno*. H. Eyll. o. 1. F. 8. Fig. 5.

7. *Pervinca*; angustifolia; vulgaris; variegata ex aureo & viridi.

8. *Pervinca*; angustifolia; vulgaris; variegata ex argenteo & viridi; flore purpurascente, pleno. *Boerb. Ind. alt. Plant. Vol. 1.*

The Juice of this Plant is bitter, heating, penetrating, saponaceous, opening, deterfive, stimulating on all Sides, and vulnerary: Hence it affords a sovereign Remedy for Infirmities proceeding from pituitous Causes. The Juice, boiled in Water, and drank to a good Quantity, opens the Uterus, provokes the Lochia, and revives the vital Heat. The Leaves cut small, then boiled a little, and expressed, and the Juice taken in the Morning in Wine, is an excellent Remedy for the Scurvy, by depurating the Blood, and detarging the Primæ Viæ. It is proper for Virgins affected with the Chlorosis, and the Dysentery. The Plant is very serviceable in the Phthisis, and in Diseases of the Fauces. The Leaves, used in Butter-milk, are good for the Fluor Albus. *Hist. Plant adscript. Boerhaav.*

PERUNDIS. See ZENDA.

PERUVIANUM BALSAMUM. Balsam of Peru. See BALSAMUM.

PERUVIANUS CORTEX. Peruvian Bark. See QUINAQUINA.

PERYGUA. See ALATERNUS.

PERYSIAS, περυσίας. An Epithet of Wine, importing, that it is of the last Year's Vintage.

PES ANSERINUS. A Name for the *Chenopodium*; *Pes anserinus*; *primum & secundum Tabernamontani*.

PES CATI. A Name for the *Helicbrysum*; *montanum*; *flore rotundiore*.

PES COLUMBINUS. See GERANIUM.

PES LEONIS. See ALCHAMILLA.

PES LEPORINUS. A Name for the *Trifolium*; *humile*; *spicatum*; *five Lagopus*.

PES TIGRIDIS. A Name for the *Sclarea*; *Indica, floribus variegatis*.

PESSARIUM, a Pessary, a Medicine proper to be introduced into the *Pudendum muliebre*, for the Cure of several Diseases incident to the Uterus, has had different Names, according to its Variety of Forms.

When it is prepared of the Length of the fore Finger, and the Thickness of the Thumb, with a due Roundness and Smoothness, it called *Pessarium*, or *Pessus*, "Pessary," and by some, περιπλεκτὰ (*Periplectota*); but Preparations for the same Purpose, which are of a round Figure, like a Nodule, are called *Nasalia*. *Morellus.*

Among other external Remedies employ'd by *Hippocrates*, were *Pessaries* \*. These were a kind of Suppositories, which they introduced into the exterior Neck of the Matrix; they were prepared of Wool, or Lint, or Linen, mix'd with Powders, Oils, Wax, or other Things, and made round and long like a Finger.



The Use of Pessaries was very frequent in ancient Times; for they served almost as an universal Remedy for female Disorders. They were made to answer the Intentions of mollifying, suppling, opening, attracting, stimulating, closing, purging, and cleansing the Matrix, of drying it, retaining it in its proper Place, and for other Purposes. In order to attain those various Ends, they made use sometimes of Oils and Fats, sometimes of Juices of Herbs, sometimes of acrimonious and stimulating Ingredients, as Nitre, Scammony, Tithymalus, Cantharides, Garlick, and Cumin; sometimes of Astringents, as the Bark and Flowers of the Pomogranate, Rhus, or Sumach, Alum, and the like; sometimes of Aromatics, as Myrrh, Castor, and sweet-scented Plants. There was not a Distemper of the Uterus, in which they did not use Pessaries; they were the Remedy for the Suffocation, which they pretended was caused by that Part; with Pessaries they provoked or stopped the Menstrues; they served as Medicines for the Relaxation, or Falling out of the Matrix, for the superfluous Humidities, Ulcerations, and Inflammations of the same, for a Dropsy of the Uterus, and for the Fluor Albus, and Sterility. With Pessaries they facilitated the Expulsion of the dead Child, and the Afterbirth, and promoted the Child-bed Purgations, besides other Services; not to mention, that they made use of them, also, as a Means to procure Abortion.

Pessaries, or Tali, were by the Antients principally used in Disorders of the Uterus, and distinguish'd into three Kinds, that is, the emollient, the astringent, and such as open the Orifices of the Veins. Those of the emollient Kind were used in Inflammations, Ulcerations, Risings, Refrigerations, Distortions, and Inflammations of the Uterus. This Species of Pessaries was prepared of *Tyrrhenian* Wax, the *Oleum Cyprinum*, or *Sufinum*, the Fat of a Goose or Fowl, fresh Butter, dry'd Resin, the Marrow of an Hart, Fenugreek, and other Substances of similar Qualities: Such as open the Orifices of the Veins were used, when the Intention was to recal the menstrual Discharge, or remove a Closure, or Contraction of the Uterus. This Species was prepared of Honey, Mugwort, Dittany, the Juice of Cabbage, Liquorice, the Juice of Leeks, Rue, Scammony, and other Ingredients of a like Nature. But astringent Pessaries were used for Purposes quite different from those of the aperient Kind, since the Intention of the former was to check the menstrual Discharge, contract the expanded Uterus, and prevent its falling down. The Consistence of these Pessaries must be somewhat thick and strigentitious. Then a Piece of Wool must be folded up in Form of a Tent, immersed in the Ingredients, and introduced into the Mouth of the Uterus, with a Thread fixed to it, that by this means the Pessary may be the more easily extracted, when it seems expedient. *Paul. Æginet. Lib. 7. Cap. 24.*

The Moderns have too much neglected the Use of Pessaries of this Kind; but employ Pessaries of various Figures and Materials, many of which are represented in *Tab. LV.* They are principally serviceable in a *Prolapsus Uteri*, and Incontinence of Urine in Females. Their Uses are farther explained under the Articles of the Disorders in which they are employ'd.

PESSOS. A Pessary. See PESSARIUM.

PESSULUS. A Pessary.

PESTICHIÆ. The same as PETECHIÆ.

PESTIS. The Plague.

The Plague is one of the most acute kind of Fevers, arising from a poisonous Miasma, brought from the Eastern Countries, and which proves mortal, unless, by the Vigour of the vital Motions, the Poison is soon carried off by means of Buboës and Carbuncles.

The Plague differs from other Fevers of the contagious, malignant, and exanthematous Kind, in this, that it is of all others, the most acute, since it sometimes destroys the Patient on the first or second Day of its Attack. In *Europe* the Plague is neither epidemic, nor sporadic, arising from a preposterous Method of living, or an insalutary Constitution of the Air; but, in our healthy Parts of the World, draws its Origin from a Contagion derived from the sultry, and before infected Eastern Climes. A Plague, also, has this peculiar to it, that it is not, like other malignant and putrid Fevers, terminated by large Sweats, Fluxes, or other Excretions; but the Poison being in a critical and salutary manner, forced to the external glandular Parts, it is terminated by Tumors, which end in Abscesses. Besides, contrary to what happens in other contagious and petechial Fevers, such is the subtle Quality of the pestilential Poison, that it quickly adheres to porous Substances, and, without any Diminution of its Force, may be convey'd to Countries many thousand Miles distant from each other. It is, also, peculiar to this Contagion, that its malignant and spreading, Nature is not only check'd, but, also, totally extinguished, by intense Cold. Hence it happens, that in cold Weather, and cold Climates, a Plague is rarely or never observed, whereas it rages frequently and violently in hot and sultry Climates.

But, as, in all contagious and malignant Fevers, the poisonous Miasma, taken in with the Air, insinuates itself into the fer-

mentable Saliva, and exerts its baleful Influence on the Parts through which it passes; so this, in a particular manner, holds true, concerning the pestilential Contagion, which, immediately attacking the Head, Brain, Nerves, and nervous Fluid, excites a Torpor of the Head, a Sense of Weight, Drowsiness, an excessive Pain, a Stupor of the Senses, Forgetfulness of every thing, Restlessness, Watchings, and a Loss of Strength. When this pestilential Contagion is convey'd thro' the Fauces to the Stomach, it excites a Loathing of Food, Nauseas, Uneasiness of the Præcordia, a symptomatic Cardialgia, Efforts to vomit, and actual Vomiting. Then, being convey'd to the Membranes of the Spinal Marrow, and the nervous Coats of the Arteries, it not only produces an Horror, and a languid, small, contracted, and frequent Pulse, but, also, Deliriums. All these are the ordinary Symptoms of a beginning Plague, and are so much the more violent and quick in their Operation, as the pestilential Poison exceeds that of other contagious and malignant Disorders.

The many violent and terrible Symptoms appearing under a Plague are no-where more fully and accurately described, than in the first Description of this Disorder given by *Thucydides* the Historian, when, in *Lib. 2. de Bello Peloponnes.* he gives an Account of the Plague of *Athens* in the following Words: "For my own part, being ill of it myself, and having seen others afflicted in the same manner, I shall give an Account of it, that, if it should happen again, the Person who reflects on it, may be able to form the better Judgment concerning it. The Year in which it began was universally agreed to be highly salutary, and free from other Diseases; and, if by chance any one was sick before, all his Indisposition terminated in this; and they who before were in perfect Health, were, without any apparent Cause, suddenly seized with a violent Heat in the Head, accompanied with Redness and Inflammations of the Eyes. Their Tongues, Throats, and internal Parts, became immediately bloody, whilst their Breath was fetid, and Respiration difficult. A Sneezing and Hoarseness ensued; and, in a short time, the Pain descended to the Breast, and was accompanied with a violent Cough. When this Pain was once settled in the Stomach, a Vomiting of bilious Matter, of as various Kinds as ever were specified by Physicians, succeeded, but not without the greatest Anxiety and Uneasiness. Many were seized with an Hiccup, that brought up nothing, but occasioned a violent Convulsion, which, in some, went off presently; but in others, continued much longer. The Surface of the Body was neither very hot, nor pale, but redish, livid, and full of small Pustules and Ulcers: But, internally, the Heat was so intensely great, that they could not endure the slightest Covering, though of the finest Linen; but could only be satisfied with absolute Nakedness. It was, also, an infinite Pleasure to them to plunge themselves into cold Water; and many of those who were not well attended, did so, running to Wells, in order to quench their insatiable Thirst, which still remain'd, whether they drank much or little; a great Uneasiness and Restlessness attending them, together with a continual Watching. Whilst this Plague was advancing to its Height, the Patient's Body did not fall away, but resisted the Violence of the Disorder beyond Expectation; so that many died on the ninth and seventh Days, of the internal Burning, some Strength yet remaining; or, if they held out longer, many of them afterwards died of Weakness; the Distemper descending to the Belly, and there producing violent Exulcerations and Diarrhæas: For the Disease went through the whole Body, beginning first in the Head; and, if any one surmounted these terrible Symptoms, violent Disorders of the Extremities succeeded; for the Plague broke out upon the private Parts, the Fingers, and the Toes; and many sustained the Loss of these Parts: Some, also, lost their Eyes; whilst others, immediately upon getting up, were seized with a total Forgetfulness of every thing, neither knowing themselves, nor their most intimate Acquaintances." And, a little after, he adds these Words: "The Disease, therefore, to pass over many surprising Circumstances, which differed in different Persons, was in general such as I have described it. And, as for other usual Distempers, they either did not then appear, or, if they did, they all terminated in this, as Lines do in a common Centre. Some of the Patients died for want of Care; and others, notwithstanding all the Care that could possibly be taken of them: Nor could it be affirm'd, that there was any certain Remedy, which, when used, proved universally beneficial, since, if it did Good to one, it did Harm to another. Nor was there any Difference in different Constitutions, as to Strength or Weakness, to enable them to resist the Violence of this Plague, which swept all away, whatever Care was taken, or whatever Regimen they used. But the most terrible Circumstance of all was the Dejection of Mind in those who found themselves beginning



“ beginning to be ill ; for, growing immediately desperate, they  
 “ gave themselves up for lost, without making any Efforts for  
 “ their own Relief ; and one being infected by another, whilst  
 “ they endeavoured to take care of each other, they died  
 “ like Sheep. And this Circumstance, of all others, contri-  
 “ buted most considerably to the surprising Mortality. ”

In a Plague, however, the Symptoms are not always of the same Nature, but very considerably different according to different Constitutions ; and this Diversity is carefully to be investigated by the Physician. Now, 'tis universally agreed upon by all Authors who have wrote concerning the Plague, that those who are of a spongy, rare, and porous Habit of Body, as, also, those who are fat, of sanguineous and phlegmatic Temperaments, Women, young Persons, and Infants, those of timid and abject Dispositions, those accustomed to poor or unwholesome Diet, those addicted to Surfeits, and who protract their Entertainments till late at Night, are much more readily seized, and more terribly afflicted, with the Plague, than those of bold and resolute Minds, lean Habits, nervous Constitutions, Persons of large Vessels, Adults, those advanced in Years, those obnoxious to the hæmorrhoidal Discharge, and those who have Fontanels, or open Ulcers. 'Tis equally certain from Experience, that nothing lays a better Foundation for receiving or heightening the pestilential Miasma, than Dread, the Fear of Death, and Consternation : So that 'tis certain, that some have not only been seized with the Plague, but, also, died of it, purely through the Influence of Terror ; for those Passions of the Mind are the most considerable, which lessen and destroy the vital Motion of the Heart and Arteries, and, consequently, the Circulation of the Blood, whilst, at the same time, they impair the vital, natural, and animal Force, since, by the Benefit of these Motions, the Contagion received is to be exterminated.

'Tis an hard Task to determine the specific Nature of the pestilential Poison *à priori*, because it is hardly subjected to our Senses. But, in as far as we are able to form a Judgment of it *à posteriori*, and an Induction of Facts, it seems to consist partly of a sulphureous, putrid, and multiplicative Nature, like Leaven, and partly of an highly subtil, acrid, and caustic, though, at the same time, more alkaline than acid, Nature. Its putrid and highly foreign sulphureous Nature appears from this, that all malignant Disorders derive their Origins from the putrid Vapours arising from unburied Carcasses, putrid stagnant Lakes, and other fetid and excrementitious Sordes ; and that this Miasma immediately contaminates the nervous Fluid, stops the systaltic Motion of the Solids, and induces a sphacelous Corruption of the Juices. But that this Miasma is, also, possessed of a caustic and subtil Acrimony, is certain from this, that the Ingress of contagious Disorders is not only generally preceded by Swarms of Insects abounding with a caustic Salt, and generated from Putrefaction ; but, also, from this, that, by vellicating and corroding the nervous Fibres, it produces a Pain, Tumor, and Inflammation, sufficiently conspicuous in the Buboës and Carbuncles.

This pestilential Poison, as we have above observed, when received into the Body, totally disturbs and perverts its Functions ; and, unless suddenly forced from the internal to the external Parts, proves infallibly mortal : Nor is this Effect, as in other malignant Disorders, produced by profuse Sweats, Discharges of the Fæces and Urine, the Hæmorrhoids, or Menfes, nor by Discharges of Blood from the Nose, whether spontaneous, or excited by Art ; since these Excretions, especially when profuse, rather prognosticate the Death of the Patient. But the salutary and critical Excretion, by which the Plague is perfectly terminated, is brought on by Tumors appearing on the Surface of the Body : So that, as in an Erysipelas, this happens within the third and fourth Days ; and the sooner and more copiously they appear, the Violence of the Disorder is so much the more mitigated ; for that these Tumors contain and eliminate a formal Poison, is certain from this, that if the Surgeon opens the Vein of a sound Person with a Lancet, which has been employ'd in opening one of these Tumors, the sound Person is forthwith seized with the Plague.

These pestilential Tumors are of two Kinds : The one is by the *Greeks* called *Bubo*, a Name common to all Tumors. These Buboës appear principally on the glandulous Parts, and most frequently on the Groins, under the Arm-pits, on the Parotid, Mammary, and inferior Axillary Glands, under the Chin, as, also, on the Glands adjacent to the Aspera Arteria ; and discover themselves by an hard painful tense Tumor of the Glands, accompanied with Heat ; and, if they are of a good Kind, they become humid, soft, and are suppurated. The other Kind is far worse than the former, and is by the *Greeks* called *Anthrax*, which signifies a live Coal, from which the *Latins* derive the Word *Carbunculus*. *Celsus*, in *Lib. 5. Cap. 28.* describes a Carbuncle in the following manner : “ It is a  
 “ Redness of the Part with Pustules not rising far above it ;

“ and these Pustules are generally black, tho' sometimes they are  
 “ livid, or pale. There seems to be a Sanies in these ; and the  
 “ Bottom is of a black Colour. The Body of them is more hard  
 “ and dry, than it ought to be naturally ; and is surrounded with  
 “ a Crust, attended with an Inflammation : Nor in the Part af-  
 “ fected can the Skin be raised, but adheres to the subjacent Flesh.”  
*Alindererus*, who lived where the Plague raged, and has wrote excellently concerning it, describes Carbuncles in the following manner : “ When a Carbuncle, of the Bulk of a Mustard or  
 “ Hemp-seed, happens, it contracts round about it a burning  
 “ Disk, or Halo, as large as a Trencher, according to the Part  
 “ affected : The Flesh affected is separated from the sound  
 “ Parts, and, like an Eschar, or putrid Flesh, falls off ; so that  
 “ the Cavity gapes, as if it had been corroded by that Species  
 “ of Cancer called *Lupus*. ” No Part of the Body is free from these Carbuncles ; but they most commonly possess the Membranes of the Muscles, and the nervous and fibrous Substance of the Skin, especially in the Back, the Arms, and the Thighs. In the Part affected, the Patients first perceive an exquisite Itching ; and, if they scratch, Pustules of a red, livid, whitish, purple, or black Colour appear. These Pustules are very thick, and appear full of Pus ; and, under some of them, a cineritious Crust is form'd, which being taken away, the subjacent Flesh appears corrupted and spongy, with an intolerable Pain and Heat of the adjacent Flesh. Then a total Mortification or Sphacelation of the Part ensues.

But, among those to whom the Plague proves mortal, some die, on the first or second Day, of a Syncope, which, no doubt, proceeds from the Terror with which they are struck. But in many, when the Poison either is not expelled, or when expelled, suddenly it returns, and, lodging in the Coats of the nobler Parts, such as the Pleura, Oesophagus, Stomach, Intestines, and Mesenteries, a Sphacelus is induced, which quickly spreads to the Viscera and Blood ; by which it happens, that the Carcasses of such Patients immediately become surprisingly fetid, tumefied, and are quickly putrefied. Sometimes, also, when there is too large a Quantity of pestilential Tumors, the Patients, just as in the Small-pox, die of a symptomatic Fever, on account of the Inflammation, Pain, and intolerable Heat.

#### The C U R E.

Since 'tis certain, that the Plague is not originally generated in *Europe*, but is imported from other Countries, there can be no more safe and infallible Advice given, than to fly from the Contagion. It is the Advice of *Celsus*, that the Person, who is as yet safe, but cannot long be sure of being so, sail, and travel, which in the *Italian* Plague, in the Year 1625. were of singular Service, as we are told, by *Natalis Comes*, *Hist. Lib. 27.* And *Sanctorius*, in *Med. Stat. Sect. Aph. 138.* informs us, “ That they, who, in order to avoid the Plague, advise any  
 “ other thing than flying from it, are either ignorant them-  
 “ selves, or intend to impose upon others.” For the same Reason, those Princes excellently consult the Welfare of their Subjects, who, in the Time of the Plague, use all Methods to prevent its Importation ; and, if an House is infected, forbid sound Persons to enter it, and forthwith burn all the Furniture, left, with it, the Contagion should be propagated to others : But all Persons, when the Plague rages, ought to live very temperately, and every Degree of Excess is to be avoided in the Non-naturals, especially with respect to the Passions of the Mind ; and all those things are to be abstained from, which impair the Strength, disturb Perspiration, and generate Crudities in the Primæ Viæ. In a particular manner, the Mind is to be fortified, and Terror, Dread, and Cowardice, are to be banished, since 'tis certain, that these Passions, during a Plague, destroy more than the Contagion itself.

Those whose Business obliges them to live among the Infected, ought to take care, that the Miasma do not enter the vital Juices, nor convert to its own Nature the salival Humours lodged in the Primæ Viæ, which easily happens. For this Purpose, we recommend frequent Vomiting, and Washings of the Mouth, with Wine-vinegar or Wine, or the Drawing these Liquors up the Nostrils ; and these are still more efficacious, if they are impregnated with Scordium, Rue, or Citron-peel ; for an Acid seems to be the genuine Antidote against a Poison of a putrid and sulphureous Nature, because from Chymistry it is certain, that an Acid fixes and enervates Sulphur and volatile Salts. For this Reason it is far safer to use Acids gently, or contain them in the Mouth, than to chew alexipharmic Roots, such as those of Zedoary, Angelica, and Masterwort. Hence, 'tis, also, expedient to drink *Rhenish* Wine, or to take a few Spoonfuls of bezoardic Vinegar, diluted with Water, or Wine. Thus *Forestus* informs us, “ That,  
 “ when the Plague was raging, he used, when called to his  
 “ Fellow-citizens, to fortify himself by these Medicines, espe-  
 “ cially by chewing Citron-peels.” The *Turks*, according to  
 1  
*Gale,*



*Cole, Lib. de Morb. Acut.* when the Plague rages, frequently use Lemon juice, large Quantities of which they squeeze into all Kinds of Broths.

Among the external Remedies for this Disorder, many recommend Fontanels; because it has been observed, that those who had chronical and scorbutic Ulcers in their Limbs, remained free from the Plague, and other contagious Diseases. *Hildanus* greatly commends Fontanels for this Purpose; and, in *Cent. 4. Obs. 23.* has these Words: "I do not remember, that any of those who had Fontanels in their Legs and Arms, died of the Plague, except one or two, who were highly cacochymic; and I have found Fontanels to be an efficacious Preservative against the Plague, both in myself and others." I remember the same was, also, told me by the Physicians who were Witnesses to the Plague of *Erfurt*. The Reason of so surprising a prophylactic Effect seems to be this, that the Matter of the received Miasma, which generally firmly adheres to the serous Parts of the Blood, will, by the Vigour of Nature, be conveyed to the Part where the Fontanel is, and thence eliminated as being weaker. Hence an unusual Pain and Tumor are observ'd about Fontanels. Perhaps, also, the Confidence of the Efficacy of Fontanels may remove the Fear, rouse the Spirits, and work like a kind of Amulet.

In the Cure of a Plague, the following Intentions are to be pursued:

1. To promote the Expulsion of the received Miasma in a proper manner, especially by these critical Tumors, which are to be duly manag'd: And,

2. To rouse and support the languid Strength, which is of so great Importance to Life; and to remove, or relieve, the most urgent Symptoms: But, since I am not experimentally acquainted with the Methods of answering these Intentions, I shall deliver the Method of curing a violent Plague, described by *Johannes Langius, Lib. 1. Epist. 18.* and then subjoin my own Opinion, and such Observations as are most agreeable to Reason and Experience. "You know, says this celebrated Author, that I have cured many of the Plague, whose Recovery was despair'd of, by the following Method: First, if, for some Days before the Beginning of the Disease, little or no Fæces were discharg'd, then I rendered the Body soluble by a Suppository, or a gentle Clyster: Then I exhibited a sudorific Alexipharmic, which, according to the Age and Strength of the Patient, is to promote a Sweat for two or three, or more Hours: Then I applied an Epithem to the Heart. Six or seven Hours after the Sweat, supporting the Patient's Strength mean time, by some proper Broth, I open'd a proper Vein; and, immediately after the Use of the Alexipharmic, exhibited, every Morning and Evening, alterative Draughts, which by their Quality resist the Poison, and were, at the same time, cordial; such as Decoctions prepared of the Juices of Citrons, Lemons, Oranges, Sorrel, and Bugle, with a little Vinegar and Sugar. In the Decline of the Disease, if the Appetite is languid, in order to carry off the Remains of the Disease, I exhibited a Medicine prepared of Rhubarb, Agaric, Cassia, or *Elæcomeli*, or Manna, and Tamarinds. Then I order'd the Surgeons not to precipitate the Consolidation of the Carbuncles and Ulcers; and those who had the Care of the Patients, to exhibit proper Aliments and Liquors at the Time prescribed: By which Method, a large Number of Patients were restored to perfect Health." A little after, he goes on in the following manner: "But if Buboes and Carbuncles appear about the Emunctories near the Ears, if Abscesses are formed under the Axillæ, if Buboes are formed in the Glands of the Groin, or if Carbuncles appear in the Arms or Legs, then, as in poisonous Wounds, we are, with all Expedition, to apply to the Part such Medicines as extract the Poison, or Cupping-glasses, or a Plaster of Leaven, Treacle, Meal, Mustard, and Onions, roasted under the Ashes, adding Opopanax and Galbanum dissolved in strong Vinegar: Then scarify the Abscess before its Maturation, or lay it open, or cauterize it. But, if the Patient dreads the actual Cautery, we may use one of the potential Kind, prepared of Cantharides and Leaven, or the Roots of the *Flammula* bruised in Oil; which, by their heating and burning Quality, not only attract the noxious Humours, but, also, frequently open the Collections made of them."

This Method of curing the Plague is highly congruous to Reason; for, in the Cure of all Diseases, it is to be laid down as a Maxim, that if, for some of the first Days of the Disorder, few or no Fæces are eliminated, the Body is to be render'd soluble by a gentle Clyster, that, by this means, the Intestines may be freed from the Excrements, lest otherwise the Symptoms should be increased, and the Efficacy of the Medicines obtunded. *Langius* is, also, greatly to be commended, for using an Alexipharmic, in order to excite a Sweat for some Hours, since, by this means, the Poison is more expeditiously

exhaled and dissipated. The Application of an Epithem to the Heart is, also, a Circumstance of great Importance; for tho' it does not immediately touch and affect the Heart, but only the Right Orifice of the Stomach, and its nervous and muscular Coats, yet it is of the last Importance, that the Stomach, which is an highly nervous Part, of exquisite Sensation, has an intimate Communication with the nervous Parts of the whole Body, and in which the Poison first exerts its virulent Influence, should be well defended; which Intention is answer'd by such Medicines as are antispasmodic, and, at the same time, corroborative and balsamic; for which Purpose I generally recommend such as are prepared of Treacle, expressed Oil of Nutmegs, Camphire, Saffron, Castor, and *Peruvian* Balsam. After the Use of Alexipharmics, the Opening of a Vein is, also, highly beneficial: For to begin the Cure with Venesection, is dangerous, because, one or two Days after it, the Motion of the Blood to the Surface of the Body, and consequently the Perspiration, is diminished, and the Poison retain'd. Besides, the Dread and Terror with which those who are seiz'd with the Plague are struck, forthwith recal the Blood from the Circumference of the Body; so that Venesection, which produces the same Effect, must, of course, prove prejudicial. But, after the Use of Sudorifics, Venesection may be admitted, if Custom, a Redundance of Blood, a luxurious Diet, or an excessive Use of Wine, requires it, because, the Redundance of the Blood being removed, the Propulsion of the virulent Matter to the Glands is facilitated and promoted; and this is so much the more effectually done, if afterwards the Flux of the Blood to the external Parts is now-and-then assisted by gentle Diaphoretics: Acids, such as Vinegar, the Juice of Lemons and Citrons are, also, justly recommended, since they resist the Poison, prevent the Putrefaction of the Humours, and the Dissolution of the Blood; for which Reason they are preferable to all other alexipharmic and antipestilential Medicines.

When the Disease is on the Decline, *Langius* purges the Patient by gentle Laxatives, which, as in the Beginning of the Plague, and other contagious Disorders, it proves hurtful, by retarding the Motion of the Humours to the external Parts, so it is highly beneficial in the Decline of these Disorders: For, by this means, the Sordes generated during the Disease are eliminated; whereas, if they were retain'd, the Appetite would be destroy'd, slow and purple Fevers induced, the Strength render'd languid, slow Heat brought on, and a new and violent Disorder of the same Kind frequently produced again. Then he orders the Poison, in the pestilential Tumors, to be extracted by Cupping-glasses, Scarification, and Vesicatories; in which he is, also, seconded by the best Authors: For *Riverius*, in *Observat. Cent. 2. Obs. 19.* greatly recommends Cantharides made up with Leaven and Vinegar, and applied behind the Ears, or to the other usual Emunctories; after this, the Patient is to be ordered to Bed; and, in twenty-four Hours, a black and serous Humour is discharged, by which means the Plague is in a few Days removed. *Langius*, also, justly advises, not to consolidate the Ulcers too soon: But, the Matter being solicited to the external Parts, and a Suppuration brought on, the Tumor is rather to be open'd, and the Ulcer cleansed with the usual Digestives; but it is to be kept long open with a Tent, that the Poison may be sufficiently eliminated, and the Ulcer, at last, brought to a Cicatrix.

*Sandorius*, in *Aph. 139. Medicin. Stat.* affirms, "That few of the Nobility are cured even by the Use of Medicines, whereas many of the common People are cured without them." For 'tis certain from Experience, that common People deprived of all the means of Relief, and who use a temperate Regimen, and large Draughts of light Liquors, sooner recover in pestilential and other contagious Disorders, than those in opulent Circumstances, who are ruined by a Redundance of Medicines, and a Variety of Advice; for, in the former, Nature is robust and vigorous, to whom if the Cure is committed, it succeeds far better, than when attempted by Art, which sometimes hinders and disturbs it. But, in Persons of opulent Fortunes, Nature is often disturbed in her Operations, and the Disease terminates unluckily, on account of their irregular Method of Life, and their too liberal Use of Medicines, which are sometimes highly improper.

In the Cure of a Plague, nothing is more prejudicial, than a liberal Use of the alexipharmic Roots turgid with an hot volatile Oil; such as those of the *Carlina* Thistle, Angelica, Butterbur, Zedoary, *Virginia* Snake-root, Masterwort, Swallowwort, Burnet; the Essences and Elixirs prepared of these, Treacle, and Mithridate. But still more prejudicial are the so much commended urinous and volatile Spirits; such as those of Hartshorn, Vipers, and Soot, as, also, volatile Salts, and Balsam of Sulphur. For the pestilential Miasma is so far from being expelled by these means, that it is rather retained, and more deeply rooted in the Constitution: For it is a constant Law in the animal Economy, that the Secretions



which precede the Excretion of the recrementitious Parts, succeed better, when the Humours are moderately and freely convey'd to the Emunctories, than when they are thrown into violent Commotions. Hot Medicines rather increase the Uneasiness about the Præcordia, augment the Heat, promote the Dissolution of the Blood, and easily force the malignant Miasma from the Stomach, and nervous Parts; in consequence of which, they cannot fail to prove prejudicial. This is sufficiently certain from all the Authors, who have liv'd where the Plague raged, and especially from *Hildanus*, *Chald. de Heredia*, and from *Thonerus*, who informs us, "That those who used hot Alexipharmics, died of the Plague."

Nor are we, in a Plague, absolutely to condemn the Use of alexipharmic Roots and Herbs; for they are by no means prejudicial, when corrected with Acids and Nitre. Thus I have been informed, that in the Plague, which in the Year 1682. raged at *Hall*, nothing was more beneficial than a Mixture of the Water of *Cardus Benedictus* with four Spoonfuls of Wine-vinegar, and of Crabs-eyes and Treacle, each a Dram, frequently exhibited. In that Plague, also, which in the Year 1576. raged almost all over *Lombardy*, many, and especially the Inhabitants of *Milan*, were said to be cured by the Juice of Goats-rue mixed with Vinegar, *Cardus*-water, and a little Treacle, covering their Bodies afterwards, in order to sweat. *Thonerus*, in *Observat.* informs us, that in the Beginning of a Plague nothing prov'd so beneficial, as Treacle-vinegar, exhibited in order to provoke a Sweat; and that in the Year 1543. when a malignant Fever raged among the Soldiers, a whole Regiment of them was preserved by this Vinegar, every one recovering who used it, except a few, to whom it was exhibited too late. *Kircher*, also, in his *Treatise de Peste*, informs us, that in the *Roman* Plague so happy Effects were produced by an Infusion of Vinegar with Rue, the Root of Burnet, Petony, Garlick, and Juniper-berries, with the Addition of a little Camphire, that whoever used it, even tho' they liv'd among the Infected, escaped the Plague. Besides, in malignant Disorders, as well as in the Plague, the Aqua Prophylætica sylvii has been always greatly esteemed, because the principal Ingredient of it is Vinegar: For this Reason, *Gesner*, in *Lib. 3. Epist.* 27. advises to exhibit all Alexipharmics in Wine mixed with Vinegar. But these Alexipharmics mixed with Acids are principally proper on the first Day of the Disorder, where Resolution and Sweat are necessary; for *Mindererus* asserts for a Truth, that, unless, twenty-four Hours after the Invasion of the Disease, alexiterial Medicines are exhibited, all Attempts to cure the Patient afterwards prove fruitless.

But 'tis universally allow'd by all who have wrote on this Disorder, that the most present and efficacious Medicines for a Plague, are those of the acid and earthy Kind. Thus *Fracastorius*, in *Lib. 3. de Morb. Contag.* both for preventing and curing the Plague, orders the following Medicine:

Take of the Juice of Wood-forrel, two Ounces; of the Juice of Citrons, one Ounce; of Diafcoridium one Dram; of the Cordial Spices, two Scruples; and of Vinegar, one Ounce.

*Mindererus*, *de Peste*, *Cap. 15.* has these Words: "There is no Putrefaction, no Infection, no Depravation of the Juices, which cannot be subdued by Acids; and, to speak the Truth, if I was debarred the Use of vitriolic Medicines, I should be but ill qualified for the Cure of a Plague." *Fonseca*, *de vera Rat. curand. Pest.* affirms the same: "For," says he, *Johannes Crato*, *Angelus de Monte Sancto*, *Martinus Rulandus*, and others, affirm, that in pestilential Fevers the Spirit of Vitriol is highly beneficial; and I can from my own Experience affirm, that I have with great Success exhibited it not only with Syrups, but, also, with Conserve of Roses." Among earthy Substances, and those of the fixed bezoardic Kind, the most considerable are, diaphoretic Antimony, the Bezoardicum Minerale, Crabs-eyes, Hartshorn calcin'd, and philosophically prepared, Amber, Seal'd Earth, *Armenian* Bole, and Cinnabar. Of these various Medicines may be prepared, and used either alone, or in Conjunction with Acids. But, with respect to these, the Curious may satisfy themselves in *Antonius Schneberg* in *Catal. Med. Simpl. advers. Pest.* *Henricius*, a *Bra. Unzerus*, *Lib. 2. Antid. Pestil.* and *Mindererus de Peste*, *Cap. 15.*

Among the Medicines conducive to the Cure of a Plague, none are more considerable than Analeptics; for in this Disorder the Strength is greatly impaired, not only by the Consternation and Terror of Mind, but, also, by the Malignity of the Disease. Hence the Physician is carefully to remove every thing, whether of a moral or natural Kind, which is prejudicial to the Strength; and, in the Cure, he must diligently avoid Anodynes, as, also, highly vaporous and ferid Substances. For recruiting the Strength, nothing is better than a Cordial Water, which is prepared in the following manner:

Take of *Turkish* Baum, four Handfuls: of Rose-leaves bruised with Salt, and of the Flowers of Lilies of the Valley, each one Handful; of recent Citron-peel, half an Ounce; of Cinnamon, one Ounce; and of Mace, half a Dram. Pour upon these, of *Rhenish* Wine, one Quart; of common Water, three Quarts; and, by a gentle Fire, draw off two Quarts and an half.

This Water, mixed with an equal Quantity of that of *Cardus Benedictus*, may either serve as a Vehicle for the other Medicines, or it may be exhibited alone with Syrup of Citron-juice, and acidulated with Spirit of Salt.

Nor are Emetics less beneficial in a Plague, since the first Intention of Cure is, with the utmost Expedition, to eliminate the received Poison from the Body. Now the contagious Miasma is first of all mixed with the Saliva, when it descends to the Stomach; whence it is convey'd to the Mass of Blood. Hence 'tis proper, with all Expedition, to eliminate the Poison by the same way it enter'd, and, at the same time, to evacuate, by Vomit, the Crudities of the Primæ Viæ, which greatly heighten its deleterious Quality. But this must be done as soon as any Person finds himself infected, and perceives a Languor and Cardialgia. Thus 'tis certain from Experience, that by these means, and the subsequent Use of Sudorifics, the Plague, and other malignant Disorders, may be checked in their Beginning. To this Purpose, there is a curious and memorable Observation in *Riverius*, concerning a certain Man, who, as soon as he found from the Symptoms, such as a Pain of the Head, and Nausea, that he was seized with the Plague, thrust the End of a Feather, immersed in Oil, into his Fauces; upon drawing which out, he evacuated, by Vomit, a Matter at first serous, then yellow, and at last porraceous. Then, betaking himself to his Bed, he took Broth, sweated, and was forthwith recovered.

The Use of Venesection is not equally agreed upon by all, since some condemn, whilst others approve of it. *Celsus*, in *Lib. 3. Cap. 4.* gives the following excellent Advice: "Pestilential Fevers, says he, require a particular Consideration, since, in these, Hunger, Medicines, or Purges, are by no means useful. But, if the Strength of the Patient permits, Venesection is highly beneficial, especially when the Disorder is accompanied with Pain." *Riverius*, also, affirms, that in a pestilential parotid Tumor, which destroy'd considerable Numbers, he preserved many by moderate and repeated Venesection; a few Ounces, for Instance, being only taken away. Venesection, however, is never to be used in the Beginning, or immediately after the Invasion, when the Patient is rack'd with Terror and Dread. But if there is a Plethora, and the Patient has sufficient Strength, it may be moderately used on the second or third Day. [Other Authors, however, recommend copious Bleeding in the very Beginning, as it should seem, upon very good Grounds.]

Neither are Physicians agreed about the Use of Nitre in a Plague: Those who condemn it think, that it refrigerates too much, and, for that Reason, resists the Expulsion of the Poison; and that the pestilential Poison is stupefactive and putridinous, and therefore fatal Diarrhoeas are to be expected from its Use. Those, on the contrary, who approve of it, maintain, that, in Conjunction with Diaphoretics, it must be as beneficial in a Plague, as in other exanthematous, malignant, and inflammatory Fevers: But the Contest is easily decided; for the individual Nature and Constitution of the Patients are to be regarded, and the Symptoms of the Disease duly consider'd. If the Patient is plethoric, the Temperament choleric or sanguineous, the Heat violent, and the Fever intense, accompanied with Thirst, and an Head-ach, nitrous Substances exhibited in small Doses, with the bezoardic Powders, are highly beneficial. But where a Torpor and Drowsiness, a weak Pulse, a Coldness of the Extremities, and an excessive Fear, have preceded, Reason informs us, that nitrous Preparations are to be abstain'd from. But 'tis always safer to associate the Nitre with Camphire, by which Union the vaporous Nature of the Camphire, and the refrigerating Quality of the Nitre, are mutually corrected; by which means a Medicine is produced, which is not only alexipharmic, but, also, effectually resists Inflammation. I remember, when at *London*, to have heard an old Surgeon, who was at *Vienna* when the Plague raged in it, say, that he, with great Success, used what he called *The black Elixir*, composed of Elder-rob, and Honey, each half a Pound; of Gunpowder and Camphire, each a Dram. The Dose is one or two Drams. And, *Gislerus* affirms, that, in the Plague of *Brunswick*, he, also, with great Success, used Gunpowder.

Besides these, critical Tumors, which terminate a Plague, are to be skillfully treated. Buboes are a good Sign, when they soon appear, and are quickly maturated: But, when they immediately recede, Death is either to be dreaded, or, at least, a Train of terrible Symptoms. Thus, if inguinal Buboes disperse,

a Pally,



a Palsy, or a Gangrene of the Side, ensues : If Tumors under the Chin recede, an intercepted Deglutition, both of solid and fluid Aliments, follows, with a Quinsey, which generally proves mortal. Tumors behind the Ears are dangerous ; those with Carbuncles on them, still worse ; and those surrounded with a livid Circle, mortal. Carbuncles are always worse than Buboes, but they are the more dangerous, the larger, the blacker, and the nearer the Heart they are. In both, Sudorifics, and such Medicines as force the Humours to the Circumference of the Body, are most proper. When Buboes come slowly forward, attracting Medicines, Cupping-glasses, and Vescicatories, are ordered to be applied. If the Buboes are protuberant, the Suppuration is to be promoted by Cataplasms of Figs, white Lily-root, Onions roasted under the Ashes, Meal of Linseed, Honey, and Saffron ; or we are to apply suppurating and discutient Medicines at the same time, such as the simple Diachylon-plaster, or that made up with the Gums, the Mucilage-plaster, and the Melilo.-plaster. When the Buboes are suppurated, they are to be laid open, and cleansed with the Liniment of *Arcaus*, sometimes mixed with Basilicon ; then they are to be consolidated, but not too soon, since 'tis better the sanious Matter should be suffered to flow for a considerable time. To Carbuncles, because the Humour is already subject to Corruption, we are not to apply Suppurants ; but we are to endeavour to procure the falling off of the Crust : For which Purpose, the Authors who write on the Plague, order the adjacent Parts to be anointed with a Digestive, and some acrid Plaster, to be laid upon the Carbuncle. When the Crust is fallen off, the Carbuncles are to be treated with the Unguentum *Ægyptiacum*, or the Unguentum *Fuscum Wurtzii*, with Honey of Roses. But if a sphacelous Corruption is present, and seems to spread, it is to be checked by a sufficient Scarification, and the Application of some Liquor which powerfully resists Inflammation and Putrefaction. A Liquor of this Kind, much recommended as highly effectual, may be prepared in the following manner :

Take of rectified Spirit of Wine, four Ounces ; of Camphire, two Drams ; of Saffron, one Dram ; and a Dram of artificial Nitre, which is prepared of urinous Spirit of Sal Ammoniac, and Spirit of Nitre : And let this be perfectly dissolved in Spirit of Wine.

As to the Regimen, it is to be observed, that, as in all exanthematous Disorders, so, much more in a Plague, excessive Heat, both of the Bed and Room, is to be avoided, as highly prejudicial. On the contrary, Cold is to be guarded against ; lest, by its means, the Eruption of the Tumors, and the Exhalation of the poisonous Matter through the Pores of the Skin, should be prevented. In this Disorder, all things ought to be temperate, since Danger attends both Extremes. *Hoffman*.

**PETALA.** Petals ; that is, the Flower-leaves of Plants. See the Explication of Botanic Terms, under the Article BOTANY.

**PETALODES,** *πταλωδης*. An Epithet for the Sediment of Urine, importing scaly, or resembling Leaves ; which is a Sign of an unequal Colliquation of the Parts of the Body, and sometimes of an Erosion, or Exulceration, of the Bladder. In Botany *Petalodes* is an Epithet for those Plants, which are furnished with Flower-leaves, or Petals ; whereas those, which have none, are called *Apetalous*, that is, without Petals.

**PETASITES.**

The Characters are ;

The Root is large and perennial ; the Leaves are grey, large, and orbicular. The Calyx is cylindrical, multiseid, squamous, and contains many Floscules collected into a Flower. The Flowers are disposed in a Thyrsus, and appear before the Leaves ; and the Ovaries are furnished with a Tube, which has a clavated, bifid Apex.

*Boerhaave* mentions four Species of *Petasites* ; which are,

1. *Petasites* ; major ; & vulgaris. *C. B. P.* 197. *Tourn. Inst.* 451. *Boerb. Ind. A.* 118. *Petasites*. *Offic. Ger.* 667. *Emac.* 813. *Raii Hist.* 1. 260. *Synop.* 78. *Petasites vulgaris*. *Park.* 419. *Petasites vulgaris rubens rotundiori folio*. *J. B.* 3. 566. **BUTTER-BUR.**

The Roots of Butter-bur are about a Finger thick, long, smooth-branched, and creeping in the upper Part of the Earth, having but few Fibres ; they have a strong Smell, and an hot, aromatic, bitterish Taste ; from these, early in the Spring, arise thick, hollow, downy Stalks, a Span high, clothed with small purplish Flowers, which consist only of a fistular Thrum, without any Border of Petala, which turn into Down : When these are past, the Leaves appear, which are very large, and roundish, but hollowed in next the Stalks, indented about the Edges, whitish and woody underneath, and green above ; it grows by River-sides, and in marshy Grounds. The Flowers appear in the Beginning of *March*.

The Roots of Butter-bur are sudorific, alexipharmic, and good for all kinds of Fevers, and malignant, infectious, and pestilential Distempers ; they are cordial, prevent fainting, and

Shortness of Breath ; they likewise provoke Urine, and are accounted good to destroy Joint-worms. They are outwardly applied, in the Form of a Cataplasim, to pestilential Buboes, and Plague-sores ; a great Quantity of them are put into the Aqua Theriacalis. *Miller's Bot. Off.*

The Plant is extraordinary bitter, but not with an equal Degree of Acrimony. The *Germans* commonly call it the *pestilential Root*, because it is found, by Experience, to be of excellent Service in pestilential Fevers. They put the Roots, stripped of their Bark, in Vinegar, till it be sufficiently impregnated with their Virtues, and then exhibit it with the Juice of Rue and Theriaca ; it is, also, recommended for an uterine Lipothymy, Difficulty of Breathing, Cough, and Asthma ; and is effectual against the broad Worm, and provokes Urine, and the Menses. Used outwardly, it is said to be good for Buboes, and malignant Ulcers. *Raii H. P.*

2. *Petasites* ; minor. *C. B. P.* 197.

3. *Petasites* ; minor, alter ; *Tussilaginis folio*. *H. R. Par.*

4. *Petasites* ; *Africanus* ; *Calthæ palustris folio*. *H. L.* 488. *Blitum Africanum, Calthæ palustris folio, caule nudo, cubitali spicam pedalem et amplius sustinente*. *Plukn. Phytog.* 182. *Almag.* 68. *Boerb. Ind. alt. Plant.*

The Name *Petasites* is from *πέταω* (*petao*) to extend, because of the Largeness of its Leaves ; or from *πέτασος* (*petasos*) an Hat, or Bonnet, because the Leaves have a sort of Cavity in the Middle, and have their Margin expanded horizontally round it.

The first Species, in particular, and, also, the second, are officinal. The Root, Leaves, Pedicles, Stalks, and Flowers, have a singular Taste, not to be found any-where else. *Petasites* is heating, aromatic, and balsamic, by which its Virtues are understood. It is aperitive, and, in Cases where a Poison is very moveable, expels it by means of Sweat ; whence it cures the Pestilence, and, in all *European* Languages, has a Name from that Disorder. They infuse a Dram, or half an Ounce, of the Root in Water, or Vinegar, and sweeten it with Honey ; this procures a profuse Sweat, and so expels the Poison. This Property principally belongs to the Root, which is, also, esteemed an Alexipharmic. The Leaves, stripped of their outer thin Membranes, and applied to the Feet of hydropic or leucophlegmatic Patients, dissipate the watry Matter ; for, being of an attenuant, aperient, and resolvent Quality, they excite Sweat, increase Perspiration, and, by that means expelling every thing that is volatile, discuss putrid, alkaline Matter, and exterminate them out of the Body. Preparations of the *Petasites* are, a Powder, Syrup, and Decoction. The Leaves and Flowers have the same Virtues as the Root, which later is to be taken up, before the Leaves come forth, or when the Flowers begin to appear ; otherwise its Virtues are exhausted. They scrape off the Bark of the Root, and infuse the Shavings of the rest ; then mixing this Infusion with the Juice of Rue, and a little Theriaca, they exhibit it as a most effectual Remedy against the Plague. The Leaves, outwardly applied, discuss Contusions. The Roots are, also, proper in the Pleurisy, when the Pus is concocted, and in Disorders of the Breast. *Hist. Plant. adscript. Boerhaav.*

**PETECHIÆ.** Red, or purple Eruptions, resembling Marks excited by the Bites of Gnats, or Fleas, which frequently appear in Fevers, and the Small-pox ; and are always of very bad Prognosis. *Sydenham*, with great Reason, apprehends, they are very often excited, and exasperated, by too warm Medicines, and an over-heating Regimen.

**PETECHIALIS FEBRIS.** A Petechial Fever.

Petechial Fevers of the genuine Kind are of an highly malignant and contagious Nature, greatly prejudicial to the Head and Strength, accompany'd with Spots of various Colours appearing on the Skin ; they arise from a Corruption of the vital Juices, and, in consequence of their subsequent putrid Dissolution, prove mortal.

These exanthematous Fevers are justly call'd *malignant*, or *poisonous*, since, for the most part, they are produced and propagated by an highly subtle Vapour, or Miasma, of an active and virulent Nature, exhaling from the Bodies of those afflicted with them. Besides, they are not to be cured without the greatest Difficulty ; and, in a short time, prove mortal to many. They, also, quickly and greatly impair and destroy that Strength, on which the Motions, which sustain and support Life, depend. And lastly, they at first appear to be of a mild and gentle Nature, and often impose so far upon Physicians and By-standers, as to be mistaken for catarrhal Fevers ; but afterwards exert their pernicious Effects with so much the greater Violence.

But the deleterious Nature of Petechial Fevers may be known from the following Signs : At first the Patients generally complain of so great a Weakness, and Loss of Strength, that they can hardly stand upright, or walk, but immediately faint away ; whereas such a Weakness is only to be observed in the Vigour and Height of other continued and acute Disorders. The Head is, also, in the Beginning of this Disorder, afflicted with Pain,



Pain, Heat, and a Torpor; the Mind is dejected, anxious, uneasy, loses all Hopes of Recovery, and prognosticates the worst. A continual Watching torments the Patient, nor does he ever enjoy a refreshing Sleep; his Appetite is lost, and his Countenance dejected; his Pulse is languid, small, and unequal; his manner of lying in Bed is preternatural and irregular, since with his Limbs folded, as it were, together, he tosses his Body perpetually. His Breast is oppressed, and this Oppression is sometimes accompany'd with a dry Cough; the Fibres of the Muscles are convulsed by a kind of undulatory and tremulous Motion, whilst the Tendons are contracted, and are affected with Twitchings. Many Patients, labouring under Petechial Fevers, neither complain of Thirst, Heat, Pain, nor Anxiety; but rather affirm, that they are sensible of no Indisposition, except an unusual Languor, and want of Sleep. The Urine is, at first, thin, like that of sound Persons. On the fourth, fifth, or even the seventh Day, appear Spots, frequently of various Colours, especially on the Back and Loins, sometimes more, and sometimes fewer in Number; but, for the most part, without affording any Relief to the Patient; for which Reason they are rather to be esteemed symptomatic than critical.

The Antients gave these Spots the general Denomination of *Exanthemata*; but the Italian Writers have since called them *Petechiæ*, from the Word *Pedechio*, because they resemble the Bites of Fleas. The French Authors have call'd them *Purpuratæ*, from their purple Colour; the Spaniards, *Tabardillo*, from their redish-yellow Colour; and the Germans, *Puncticulæ*, or *Lenticulæ*, because in Figure and Colour they resemble a Lentil; whilst the Hungarians denominate this Disease from the Pain and Delirium which attend it. But, besides the Figure of the Spots, Petechial Fevers differ from other exanthematous Disorders in this, that the Spots in the former not only appear without any Degree of Heat, Itching, Elevation, Asperity, and Exulceration of the Skin, but, also, for the most part, without affording any Relief to the Patient, because the Matter of them is not of a saline and caustic, but rather of a putrid and corrupted Nature.

These Spots are so far from affording any Hopes of Recovery, that, on the contrary, the more numerous they are, the greater Degree of Corruption they discover; and when they are of a livid, leaden, or blackish-green Colour, they are plain Proofs of a sphacelous Corruption. It is, also, to be observed, that those, who escape the Fury of this Disease, are recovered, not by any cutaneous Eruptions, but either by profuse Sweats, of a fetid, acrimonious Smell, or by critical Fluxes. But such an happy Event only happens by the Strength and friendly Concurrence of Nature in those Persons, whose Juices are not as yet greatly corrupted, but are as yet temperate, and retain something of an alexipharmic Quality. Many Patients, labouring under Petechial Fevers, rather die, either of a sphacelous Corruption in the Stomach, Intestines, and other Viscera, or of a Phrenitis, or, which happens more frequently, of an anginous Inflammation of the Fauces and Oesophagus; the Carcases, in the mean time, of such Patients diffusing a most intolerable Stench immediately after their Death. This fatal and unlucky Event is prognosticated by the following Signs: If the Patient's Thirst is either none at all, or insatiable; if the Tongue is dry, furrowed, and blackish; if the Fauces are inflamed, and covered with Sordes, and the Deglutition is difficult; if, after the Eruption of the Spots, the Respiration becomes difficult, and the Uneasiness of the Breast not only continues, but is increased; if, after Sweat, or a Flux, the Delirium, and other Symptoms, are augmented, whilst the Urine is neither turbid, nor deposits a Sediment; if the Eyes become dim, the Mind totally delirious, and the Patient pick the Knaps of the Bedcloaths; if there is a subfultory Motion of the Tendons; if the Excrements are involuntarily discharged; if the Patient is covered with a cold Sweat; and, lastly, if Convulsions come on, which put an End to Respiration and Life.

The formal Cause of these pernicious Fevers consists in a putrid Dissolution or Colliquation of the Blood, and vital Juices, and especially in the Contamination, and totally peccant State, of that most subtle, elastic, and lymphatic Fluid, which, being originally contained in the Blood, secreted in the Brain and spinal Marrow, and distributed through the Nerves to the whole Body, conveys Sensation, and a Power of Motion, to all its Parts; for that this poisonous Vapour, by which even sound Bodies are infected, is of such a Nature and Power, as not gradually to induce a putrid Fermentation on the Blood, and other Humours of the Body, but, also, penetrate immediately to the interior Recesses of the Brain, and nervous Parts, and there to corrupt the subtle nervous Fluid, is obvious from this; that, as soon as such a poisonous Vapour is received into the Body, the natural, vital, and animal Strength begins to languish, even in perfectly sound Habits, whilst the Crisis of

the Blood and Humours as yet remains entire, and free from Corruption.

This virulent and contagious Miasma principally enters the Body by the Nostrils, Fauces, and Bronchia; for in no Part of the Body are there more open and less defended Nerves, than those in the Nostrils distributed from the first and second Pairs. Whilst, therefore, this deleterious Vapour passes with the Air through these Nerves, it is not surprising, that it should immediately reach the Nerves and Brain, and that the Persons, who have this Misfortune, should be immediately seized with a kind of Intoxication, a Torpor of the Head, a Languor of Strength, and a Vertigo. But this contagious Miasma, most of all, mixes itself with the Saliva, and, with it, descends to the Stomach; which, as being, also, a nervous Part, is generally the first Seat of these contagious Fevers. Hence the first bad Symptoms, for the most part, discover themselves first in the Stomach and Præcordia; such as a Nausea, accompanied with an Inclination to vomit; frequent Stools, accompanied with Gripes; or violent Costiveness; Loathing of the Food, Anxieties of the Præcordia, a Cardialgia, and frequent and copious Eructations of Lymph from the Stomach. And it is evinced by Anatomical Observations, that, in Persons who have died of Petechial Fevers, the Stomach has, beyond all other Parts, been found affected with a sphacelous Corruption. But whilst this Miasma is mixed, not only with the Saliva in the Mouth, but, also, with the Gastric Liquor, and the Pancreatic Juice in the Stomach, its contagious and propagating Force is much augmented; for it is universally agreed upon, that these salival Juices, subservient to the intimate Digestion of the Aliments, are of so subtle, spirituous, aerial, elastic, and fermentable a Nature, that sweet Substances, with which they are mixed, are forthwith put into a fermentative Motion. Hence these Juices, already in an intestine fermentative Motion, readily conspire with the subtle and putrid Miasma, when conveyed to them; so that the latter propagates itself, and is increased, exactly in the same manner, as a small Piece of Leaven ferments a large Mass of Dough.

Hence the Reason is sufficiently obvious, why, in order to avoid the Contagion of Petechial Fevers, nothing has, by the most skilful Physicians, been observed to prove more effectual, than avoiding the Breath of the Infected, especially when the Disorder is at its Height, and the Putrefaction greatest; frequently discharging the Saliva, and holding such Substances in the Mouth, as have a Tendency to evacuate it; chewing the Roots of Angelica, Zedoary, Masterwort, and Burnet; or smoking Tobacco. Hence, also, the Reason is obvious, why this deleterious Miasma is far most easily received, and soonest exerts its pernicious Force, in a Stomach that is loaded with a large Quantity of Crudities, and pituitous or salival Sordes. Hence, also, the Reason appears, why gentle Emetics, in Conjunction with Alexipharmics, in Persons recently infected, are the most effectual Means of checking a Petechial Fever in its Beginning.

I am of Opinion, with *Hippocrates*, that these contagious Fevers derive their first Origin from some common and prevalent Intemperature of the Air; such as a long-continued, moist, rainy, cloudy, as also a close, hot, and moist State of the Atmosphere; which, by reason of the large Quantity of aqueous Vapours, obtund and depress the brisk, elastic, and expansive Force of the Air, which sustains such a Motion of the Solids and Fluids, as is necessary to Life. Hence the salutary Excretions, especially Perspiration, become languid and disturbed; whilst the useless, superfluous, and corrupted Parts are retained in the Habit; which, being accumulated in the Blood and Juices, must necessarily generate a strong Tendency to Corruption and Dissolution. Besides, under such a Constitution of the Weather, Vegetables and Grain acquire a kind of foreign Nature, which is unfriendly to the human Constitution; for it is certain from Experience, that, during a long Tract of moist and rainy Weather, there is found, especially in Rye, a large Quantity of the Darnel, which is of a noxious and almost poisonous Nature. Nor does Rye, produced in such rainy Seasons, yield so large a Quantity of Spirit, nor prove so salutary and nourishing Bread, as that which grows during dry and hot Weather; so that it is not surprising, that such unsalutary and corrupted Aliments should dispose the Body to Putrefaction.

Besides, the Air is rendered insalutary, and unfit for generating putrid Disorders, by frequent and long-continued Inundations; for, in this Case, the Water stagnating, especially by means of the Heat of the Sun, begins to grow putrid, and sends up many noxious Effluvia into the Atmosphere. Large Quantities, also, of various kinds of Insects are generated about stagnant Waters, from which a large Portion of caustic, saline, deleterious, and subtle Matter is exhaled into the Air. Now, that these things are highly prejudicial to Health, is certain from various Observations, which evince, that, after large Inundations,



dations, contagious and almost pestilential Fevers have been produced. See *Hoffman, de Temp. Ann. insalub.* Of the same offensive and insalutary Nature is the Air, when impregnated with Exhalations arising from uninterred and putrefying human Carcasses, or from the Excrements of Animals; and especially when such an Air is confined, and deprived of the Access of a more pure Atmosphere.

Not only an impure and insalutary Air, but, also, the particular Habit and Disposition of the Body, contributes to the Generation of Petechial Fevers. Thus it is certain from Experience, that phlegmatic and sanguineous Persons, those of lax and spongy Habits, those of timorous and anxious Minds, and those whose Strength is exhausted by Luxury, the excessive Use of improper Aliments, Drunkenness, Venery, Hunger, protracted Sorrow, Watchings, Fatigue, or Hæmorrhages, are not only easily and frequently seized with Petechial Fevers, but also with Difficulty recover from them; for no other Reason, than that their impure and weak Bodies have a strong Disposition to Putrefaction and Corruption. Cachectic Women, also, and those affected with a Suppression of the Menfes, those labouring under a Lues Venerea, and such as have the dire Remains of it in their Habits, are not only readily seized with Petechial Fevers, but, also, escape with great Difficulty.

Hence we may easily judge, why these contagious Fevers rage so frequently in Camps, where all the Causes productive of this Disorder generally concur; for the Soldiers are sometimes exposed to a dry and hot Air, and, immediately after, to a moist and cold Atmosphere. They sleep in the open Air, and often in moist and marshy Places. The Excrements of Men and Animals are every-where to be found. Nor, on account of the Intrenchments, is there any Access to the Wind, in order to dissipate the fetid Exhalations. They eat improper, and sometimes absolutely corrupted, or half-boiled Aliments. They drink stagnant and putrid Waters, and have their Strength impaired by Hunger and Watchings. Hence, when, from this laborious and hard Course of Life, they retire to their Winter-quarters, indulge themselves in Ease, and eat copiously, the internal Corruption, gradually contracted, at last increases so far, as to appear in a Petechial Fever; for which Reason Disorders of this Kind are more frequently observed in the Winter-quarters, than in the Camps of Soldiers. For the same Reason these malignant and contagious Diseases are more incident to poor Persons, who live in Filth, and are confined, in small Cottages, to a vapid and impure Air, than to opulent Persons, who have better Opportunities of observing the Rules of Health, with respect to Air and Regimen. These Fevers, also, frequently happen in Hospitals, Nurseries for Orphans, and public Prisons, where many are kept together, and lead a miserable Life, which poses the Body for receiving the Contagion.

#### The Cure.

In order to preserve ourselves from Petechial Fevers, nothing is of greater Importance, than that, during insalutary Seasons of the Year, fit for generating malignant Disorders, we should carefully avoid an Air impregnated with noxious Vapours and Exhalations, and destitute of a brisk and elastic Expansion. Besides, since, under such a Constitution of the Air, the Bodies of People are weak, and disposed for contracting Diseases, it is highly expedient, that, at such Seasons, we should abstain from every thing, which can either impair the Strength, or render the Excretions more languid; such as violent Commotions of Mind, Grief, Terror, Care, intense Meditation, protracted Watchings, and exposing the Body to Cold, especially in the Night-time, or with thin Cloaths in cold Weather. Besides, the Increase of Crudities in the Primæ Viæ is to be prevented; for which Reason we are to abstain from eating excessively, especially of insalutary Substances, from Surfeits, the continual Smoking of Tobacco, and the profuse Use of Coffee, which, as it is unfriendly to the Stomach, so it is much more the nervous Parts, and the Mixture of the vital Fluids. We are to take care to breathe a salutary and pure Air; for which Reason we are to avoid low Places, in which the Air readily becomes vapid; as, also, Houses, which are not exposed to a free and open Air. The excessive Humidity of the Air is, also, to be corrected by Fires, and Fumigations by Mastich, Amber, and Juniper-berries.

But, among all the Preservatives against Petechial Fevers, I know none more effectual, than the moderate Use of good Wine, especially of the *Rhenish* Kind; for this, drank moderately in the Morning, or even at Meals, surprisingly sustains and recruits the Strength; promotes the Circulation of the Blood, and the several Excretions; assists the Digestion of the Aliments; and excellently resists Putrefaction, especially when moderate Exercise, and some other diluting Liquor, are used in Conjunction with it. I can, from long Experience, affirm, that in epidemic Disorders, arising from a moist Constitution

of the Air, those who observed a good Regimen, and daily drank a moderate Quantity of laudable Wine, escaped: Those, also, who have written concerning the Plague, affirm, that Wine is one of the best Preservatives against that Disorder. And I venture to assert, that, after a Crisis happens in Petechial Fevers, there is no better Medicine, than Wine, for reinforcing the languid Strength, and promoting cutaneous Excretion.

In the Beginning of Petechial Fevers no Medicines are more beneficial than Acids, especially Citron-juice put into Ptisans to be drank, in order to extinguish the Heat, and remove the Putrefaction, as, also, Wine-vinegar either simple or distilled, joined with Mixtures of proper Waters, and fixed diaphoretic Powders. Besides these, such Medicines are, also, proper, as, without impairing the Strength, colliquate the Saliva, and free the Breast from Infections; for, with the celebrated *Cramerus*, I have often observed, that hardly any Persons, who had a copious Discharge of Saliva and Spit, died of Petechial Fevers. For this Reason, the Physician now mentioned, in these Disorders, made frequent Use of alexipharmic Mixtures, composed of distilled Vinegar, or Vinegar of Scordium and Cinna-bar, and sometimes of bezoardic Mineral, and Oxymel of Squills. But it is an horrid Practice, in the Beginning of Petechial Fevers, to exhibit volatile bezoardic and sudorific Medicines, with an hot Regimen, and boiling-hot Infusions; for by these means the intestine putrid Motion is increased, an Orgasm brought on, and a greater Loss of Strength produced.

In the Decline of a Petechial Fever, no Excretion is more salutary, than that made by Stool coming on at a proper time: I have found from a Series of more than fifty Years Experience, that Fevers of this kind were rarely terminated by Sweats and Hæmorrhages alone, but more frequently by a Diarrhœa appearing on the seventh, the ninth, or the eleventh Day; and that nothing was more prejudicial, than stopping a violent Diarrhœa, or a critical Flux, in the Beginning. I have, also, found from Experience, that, in Cases where catarrhal, malignant, and exanthematous Disorders have been terminated by Fluxes, the Patients have escaped the white Purple Fevers, which, in the Decline of a Petechial Fever, when the Pulse is become equal, frequently supervenes about the eleventh Day, not without great Danger to the Patient. The most skilful Physicians have long ago adverted to the Salubrity of Fluxes in Disorders of this Nature. Thus *Hippocrates*, in his *Epidemics*, informs us, that those who labour under acute Fevers of this kind, were cured by Fluxes. *Galen*, also, in his *Treatise de atra Bile*, Cap. 4. informs us, that, in a certain pestilential Constitution, a Diarrhœa proved highly salutary. *Gerardus Columbus*, also, in his *Treatise de Pestil. Febr.* highly extols the beneficial Effects of Fluxes, in these Words: "All, who had copious Fluxes, though with the Signs of Crudity, were at last cured; for, as the Flux proceeded, the Signs of Concoction appeared, the Disease became milder, and, the Flux still continuing, the Patients were totally and entirely cured." This Doctrine is, also, confirmed by *Valleriola*, in *Obs. Lib. 6. de Febr. Schenkius, Observat. Lib. 6. de Febr. Riverius, Observat. Cent. 1. Observat. 47 & 48. and Cent. 2. Obs. 34 & 87. Horstius, in Observat. 10. Johannes Rhodius in Cent. 2. Obs. 85. Secreta, de Febre castrensi maligna, Cap. 4. and Bonetus in Thes. Pract. de Febr. putr.* as, also, in his *Treatise de Causo*, Cap. 2.

This is, therefore, the Method of Nature, with which the Physician ought to act in Concert, and which he ought to assist, if weak and defective. I am convinced from Experience, that whatever is to be expected in the Cure of putrid, malignant, pestilential, and Petechial Fevers, consists in a seasonable Use of such Medicines, as, with Safety, render the Body soluble; but these ought principally to be exhibited about the critical Days, that is, from the seventh to the fourteenth; for, if they are used in the Beginning, they do but little Service, because the Matter is not then concocted, and fit for Excretion; but as, in order to render the Body soluble through the whole Course of Petechial Fevers, there is nothing more prejudicial, than those Medicines, which act by a certain caustic Acrimony, Senaleaves not excepted; so nothing is more proper for this Purpose, than such Substances, as have nothing in their Contexture capable of impairing the Strength, but render the Body soluble in a mild and gentle Manner. The most considerable of these is a due Dose of Manna, mixed with a sufficient Quantity of Cream of Tartar, which, on account of its grateful Acidity, is, also, beneficial in these Disorders. This Intention is, also, answered by solutive Syrup of Roses, mixed with a saline Stimulus, prepared of Cream of Tartar, Sal Polychrest. or antimoniated Nitre; and exhibited in a due Dose, at a proper Season, and with some diluting Vehicle, such as Whey duly prepared; or temperate mineral Waters, such as the *Antonian* and *Wildungensian* Springs. No less excellent for the same Purpose is the Pulp of Tamarinds, or Decoctions of them prepared



with Manna, or Rhubarb. How excellent Effects are, in Petechial and malignant Fevers, produced by Laxatives, we are informed by *Moræus*, in his *Treatise de Malign. Febr.* where he gives us more than twenty Instances, in which he, with great Success, used Pulp of Tamarinds, and an infusion of Rhubarb, Sena-leaves, Cream of Tartar, and Manna, in the Water of Wood-sorrel.

But, in the Cure of Petechial Fevers, Physicians are not agreed with respect to the Propriety of Venesection; and, indeed, it must be owned, that there is so great a Difference between malignant Fevers, that the most skilful Physicians are often lost and bewildered in investigating their Natures; but it is certainly true, that, when such Fevers afflict plethoric or plethorico-cachymical Patients, Venesection is highly proper, as a Preservative; as, also, in those accustomed to Venesection, high and luxurious Living, or a sedentary Life; for I have found from Experience, that those, from whom Blood has been previously taken away, either were not seized with those Disorders at all, or were less affected, and more easily recovered, than those who had not the Advantage of Venesection.

But it is carefully to be observed, that both during Petechial Fevers, and in their Decline, the languid Stomach is not to be overloaded with Aliments, much less with those of an insalutary kind, and especially with large Quantities of Flesh. It is a vulgar Error, especially among the common People, to believe, that the Strength is restored by Aliments. But this is one of the principal Causes, why Patients, who sometimes think themselves past Danger, yet find themselves miserably mistaken; since, by this means, the former Disorder returns, and more effectually endangers Life; or a new Disease supervenes. *Hoffman*.

PETIA. A Rag formed into a *Nodulus*, or Bag, in order to contain Medicinal Ingredients. *Petia Oculi* is an Hæmorrhage from the Eye. *Castellus*.

PETICULÆ. The same as PETECHIÆ.

PETIGO; the same as *Impetigo*. See LEPRO.

PETIOLUS. The Pedicle, or Stalk, of a Fruit.

PETIVERIA. Guinea Henweed.

The Characters are;

It hath a Flower consisting of four Leaves, which are placed almost in the Form of a Cross, from whose Cup rises the Pointal, which afterwards becomes the Fruit, which is bordered and cut at the Top, resembling an inverted Shield, containing oblong Seeds.

*Miller* mentions but one Species of this Plant;

*Petiveria solani foliis, loculis spinosis. Pluk. Nov. Gen.*

This Name was given to this Plant by Father *Plumier*, who discovered it in *America*, in Honour to Mr. *James Petiver*, an Apothecary, who was a curious Botanist.

It is a very common Plant in *Jamaica*, *Barbadoes*, and most of the other Islands in the *West Indies*, where it grows in shady Woods, and all the *Savannahs*, in such Plenty, as to become a very troublesome Weed; and, as this Plant will endure a great deal of Drought, so it remains green, when other Plants are burnt up, which occasions the Cattle to browse on it; and, having a most unfavourable strong Scent, somewhat like wild Garlic, it gives the Cows Milk the same Flavour; and the Cattle, which are killed soon after feeding upon this Plant, have a most intolerable Scent, so that their Flesh is good for little. *Miller's Dictionary*.

PETRÆ OLEUM. See NAPHTHA and PETROLÆUM.

PETRACORIUS LAPIS. Geoff. Prælect. Angl. Edit. 179. THE PERIGORD STONE.

This is a fossil ferruginous Substance, black, hard, and heavy, seeming to contain some Particles of Iron. It is dug in the Mountains of *Dauphiny*, and used only in painting earthen Vessels, and by the Enamellers. *Grossiory*.

PETRELÆUM. See PETROLÆUM.

PETRIFICATIO. See ANCURTUS.

PETROLÆUM. See NAPHTHA.

In *Brofely*, *Bently*, *Pitchford*, and other Places adjacent in *Shropshire*, there lies over most of the Coal-pits, or Mines, a Stratum, or Layer, of a blackish Rock, or Stone, of some Thickness, which is porous, and contains great Quantities of bituminous Matter.

This Stone, being brought to the Workhouse, is ground small by Horse-mills, such as are used for grinding Flints, to make Glass of; the Powder is thrown into great Coppers of Water, where, by Boiling, the bituminous Matter is separated from the stony, or gritty, this last sinking to the Bottom, the other swimming at the Top.

This bituminous Substance, being gathered together and evaporated, comes to the Consistence of Pitch, and, with the Help of an Oil distilled from the same Stone, and mixed with the Pitch, comes to be thinner, or like Tar; the Uses of both which Materials, either for Shipping, or otherwise, these Substances

are said to supply, and even to excel. This has been tried on several Boats, and it does not crack, like the ordinary Pitch or Tar, but always keeps black, or soft; and therefore is proposed to hinder the Worms from getting into the Ships pitched with it.

There is, likewise, distilled from this Stone an Oil, which may be used for Oil of Petre, or Turpentine, and has been tried in Akes and Pains. *Philosophical Transactions*.

This Oil has lately been advertised as a secret and excellent Topic for Pains, by the Name of Oil distilled from a stony Rock.

PETROMARULA. A Name of a *Cretan* Species of *Rapunculus*. *Raii Hist. Plant*.

PETROSELINUM. See APIUM.

PETROSUM OS. The hard Part of the Temporal Bone. See CAPUT.

PETUM. Tobacco. See NICOTIANA.

PEUCE. The Pine-tree, or *Larix*.

PEUCEDANUM.

The Characters are;

The Root is perennial, deeply sunk, and hairy. The Leaves are winged, narrow, grassy, and divided into three Parts. The Seed is flat, almost oval, slightly striated, and margined.

*Boerhaave* mentions three Species of this Plant; which are,

1. Peucedanum; majus; Italicum. *C. B. P.* 149. *M. U.* 36. *Tab.* 9.

2. Peucedanum; majus; Italicum foliis longis, angustis. *An ferula Orientalis, Peucedani folio?* *T. Cor.* 22.

3. Peucedanum; Germanicum. *C. B. P.* 149. *Tourn. Inst.* 318. *Boerb. Ind. A.* 66. *Peucedanum*. *Offic. Ger.* 896. *Emac.* 1054. *Raii Hist.* 1. 416. *Synop.* 3. 206. *Peucedanum vulgare*. *Park. Theat.* 880. *Peucedanum minus Germanicum*. *J. B.* 3. 36. *Peucedanum, Pinastrella, Faniculum porcinum*. *Merc. Bot.* 1. 58. HOGS-FENNEL.

The Leaves of this Plant are large and winged, observing a tripartite Division, and having three Leaves upon one Stalk, which are much broader and flatter than common Fennel. The Stalk grows to be about two Feet high, divided toward the Top, hollow and striated, on which grow broad flat Umbels of five-leav'd yellow small Flowers, which are succeeded by larger and flatter Seed, than that of Fennel. The Root is thick and long, of a dark-brown Colour, being somewhat hairy, or beset with small setaceous Villi on the Top, of a very strong sulphureous Smell: It grows in several Places by the Seashore, and flowers in July. The Root is the only Part used, and that not often.

Hog-fennel is accounted good to clear the Lungs of tough viscid Phlegm, and thereby to help old Coughs, and Shortness of Breath; it, likewise, opens Obstructions of the Liver and Spleen, and helps the Jaundice; it, likewise, provokes the Menfes, and gives Ease in Labour-pains; the Juice, snuffed up the Head, is commended by the Antients, against the Lethargy, Apoplexy, Epilepsy, and other Disorders of the Head and Nerves. *Miller's Bot. Off.*

The Root, and the other Parts, of the *Peucedanum* are endowed with a cathartic Virtue, as we are inform'd by the Antients; but, on account of its fetid and rank Smell, were not much used.

*Peucedanum* expectorates tartareous Mucus, and extracts Bile; it provokes Urine, and is said to be good for the Stone. Outwardly it is of Service in the Hemicrania, and other Pains incident to the Head, and proceeding from Catarrhs; in renitent Tumors; and for cleansing old Ulcers. *Raii Hist. Plant*.

The Name *Peucedanum*, is from Πεύκη, (*Peuce*) a Pine-tree, which it resembles in its Leaves.

It is commended by the Antients for discussing inflammatory Diseases; for which Purpose, they prescribe a Decoction of the Root in Water, sweetened with Honey, and drank warm. Hence it is very proper for resolving a Pleurisy and Peripneumony, when they may be remov'd by an Anacatharsis, or Expectoration. They prescribe it, also, for Bloody Urine, and the Stone or Gravel in the Kidneys. It provokes Urine, is an excellent Resolver of Phlegm, and cleanses the Kidneys of every thing which adheres to them; for which Purpose the Root is boiled in Wine. It is commended as of Service in the Beginning of a Cataract, and in a Redundance of Phlegm, and as an excellent Resolver and Discusser of all Obstructions. The Root is very good for the hysteric Passion; and is possessed of a balsamic, deturging, and gently heating Virtue; and is of extraordinary Use for cleansing Wounds and Ulcers. *Hist. Plant. adscript. Boerhaav.*

PEVETTL. *H. M. Baccifera Indica, Floribus ad Foliorum Exortus, Fructu sulcato decapryeno Solanum somniferum Anti-quorum.* *Alpin. Exot. forte.* A bacciterous Tree growing in *Malabar*, of whose Leaves they prepare a vulnerary Ointment. *Raii Hist. Plant.*

PEXIS, πύξις. Congolation, or Concretion.

PEZA,



# P H A

**PEZA**, πίζα. The Malleolus, or Sole of the Foot; and, according to some, the very Bottom of the Sole. *Pollux* says, that the Part under the Tibia is called *Sphurion*, and *Peza*. In *Galen's Exegesis*, under Πίζα, we read as follows: "In the second Book of *Morb. Mul.* it is written, *ἡ δὲ πίζα ἐστὶν κοῖται, ἀπὸ πίζας μάστιγα* [and the Feet swell, and especially the *Peza*]. *Zenodotus*, in his *Gentilia Vocabula*, [Words proper to certain Countries] says, that the *Arcadians* and *Dorians* call the Foot *Peza*; but *Hippocrates* seems to call by that Name, either the Bottom of the Sole, called *Pedion*, or the *Malleoli*." *Cornarius*, in his *Hippocrates*, renders it by *Pedum Extremitates*; and *Calvus*, by *Tali*.

**PHACE**, φακί or **PHACOS**, φακός. A Lentil.

**PHACODES**, φακώδης. Of the Colour of a Lentil.

**PHACOIDES**, φακοειδής. Of the Form of a Lentil; an Epithet for the Crystalline Humour of the Eye.

**PHACOPTISSANA**, φακοπτιώδης. A sort of Aliment prepared of Ptisan and Lentils. *Galen, de Aliment. Facultat.*

**PHACOSIS**, φακωσις. A black Spot in the Eye, resembling a Lentil.

**PHÆNOMENA**. Appearances. Whatever happens to Bodies, and falls under the Cognizance of the Senses, either according, or contrary to Nature, is called *A Phænomenon*.

**PHÆON COLLYRIUM**. The Name of a *Collyrium*, described by *Scribonius Largus*.

**PHAGEDÆNA**, φαγέδαινα, from φάγω, to eat, feed upon, is taken sometimes in a general Sense, as signifying all Kinds of Ulcers, which corrode the sound Parts adjacent to it; and grow still worse as they spread; sometimes it means only a particular Sort of Ulcer, as distinguished from other Kinds, as an Herpes, Noma, and the rest, in which Sense it is defined to be a tumid and deep Ulcer corroding the subjacent Flesh, and the Parts around it. This is the Substance of what *Galen* says on the Subject, in his Comment on 6 *Aph.* 45. The same Author, in his Book of *preternatural Tumors*, makes the characteristic Difference between an *Herpes* and a *Phagedæna*, to consist in this; that the former spreads itself only by Corrosion and Exulceration of the Skin, but a *Phagedæna* by corroding, also, the subjacent Parts. *Celsus, Lib. 6. Cap. 18.* makes a *Phagedæna* in the Penis, a Species of *Cancer*.

*Phagedæna* is, also, used, in a kind of metaphorical Sense, to signify an Affection of the Stomach, much the same with the *Caninus Appetitus*, as appears by the Definition given of it, by the Author of the *Definitiones Medicæ*. *Pliny, also, Lib. 26. Cap. 11.* makes *Phagedæna* to signify sometimes a Disorder, under which the Patient eats immoderately, and sometimes a sort of Ulcer; and *Hesychius* gives the same double Exposition of the Term.

**PHAGOS**. A Name for the *Quercus*; *parva*; five *Phagus Græcorum*, & *Esculus Plinii*.

**PHAGRUS**, or **PAGRUS**. The Name of a Sea Fish, about a Foot long, not unlike a Roach, but larger, and thicker.

The Stones found in the Head of this Fish, when reduced to a Powder, and exhibited internally, are of an aperient Quality, and proper for removing the Stone of the Kidneys, rendering the Body soluble, and correcting the acid and acrid Humours of the Stomach. The Dose of this Powder is from half a Scruple to half a Dram. *Lemery des Drogues*.

**PHALACRA**, φαλακρά σιδήρεια, in *Hippocrates*, are blunt and smooth iron chirurgical Instruments, as a Probe, or any other, with a Button at the End.

**PHALACROCORAX**. The Cormorant. The Skin is said to be good to fortify and warm a weak Stomach, if apply'd thereto. *Lemery des Drogues*.

**PHALACROSIS**, φαλακρωσις. Baldness.

**PHALÆNA**. The same as *Balæna*, the Whale.

**PHALAIA**. A barbarous Term introduced by *Basil Valentine*, importing an universal internal Medicine, or *Panacea*: But *Rolfinkius* uses this Word to express a Tincture of Jalap.

**PHALANGIA**. A very large Sort of Spider, common in hot Countries, as *Italy*, *Spain*, and the *Indies*. They are said to cure an intermittent Fever, if they are bruised, and applied to the Wrists, a little before the Fit. *Lemery des Drogues*.

**PHALANGITES**, φαλαγγίτης. A Name for the *Lili-astrium*; *Alpinum*; *minus*. It is thus called by *Paulus Ægineta*.

**PHALANGIUM**. A sort of Insect, of the Spider-kind, whose Bite is said to be venomous.

They who have written of venomous and noxious Animals, have described several Species of the *Phalangium*, as the *Rhagium*, *Lupus*, *Formicarium*, *Cranocolaptes*, *Sclerocephalus*, and *Scolecium*, in all six. The *Rhagium* is round and black, resembling the Stone of a black Grape, whence it has its Name; [ἐίδυον, *Rhagium*, signifying a Grape-stone]. Its Mouth is situated near the Middle of its Belly, and its Legs are very short on each Side. The *Lupus* kills Flies, and seeds on them; it has a broad and voluble Body; the Parts about its Neck are in-

dented, and its Mouth has three Eminences. The third Species, called *Myrmecium*, or *Formicarium*, very much resembles an Ant; it is of a footy Colour, and its Body is marked with a sort of Stars, especially about the Back. The fourth; or *Cranocolaptes*, is somewhat long and green, and has a Bristle near its Neck, and, in its Attack, aims at the Head. The fifth, called *Sclerocephalus*, has an hard and stony Head, and all the Lineaments of those Animals, which fly about lighted Candles by Night. The last, which is *Scolecium*, or *Vermicarium*, is somewhat long and spotted, especially about the Head.

The Bite of these Animals is so small, as hardly to be discerned; but is followed by a livid, and sometimes a red Tumor, attended by a Coldness about the Knees, Loins, and Scapulæ. Sometimes the whole Body is oppressed with a Sense of Weight; accompanied with a continual Pain, Trembling, Paleness, and Want of Sleep. In some there is an Erection of the Penis, and an Itching about the Head, and sometimes about the Calves of the Legs; the Eyes are hollow, watery, and shed Tears; the Belly is unequally swelled, and the whole Body and Face are tumefied, especially the Parts about the Tongue, so as to cause an Impediment in the Speech. Sometimes the Patients are afflicted with a Dysfury, accompanied with an Erection of the Pudendum, and a Pain. If they make Water, their Urine is aqueous, and contains something like Spiders Webs; and their Vomit, and sometimes their Stools, are of the same Nature. By bathing in warm Water, they fancy themselves eased of their Pain; but afterwards it returns with more Violence, and a painful Erection of the Penis; but, in old Persons, far from being erected, that Part suffers a great Relaxation. These are the Symptoms in general, which are common to the Bites of all those Creatures. Those which proceed in particular from the Bite of the *Cranocolaptes*, are an extraordinary Pain of the Head, Vertigo, a continual Coldness, Delirium, Restlessness, and a pungent Pain of the Stomach. They, who are bit by these Animals, are relieved by bathing every Day, and washing the Wound with the Decoction of *Trifolium bituminosum*; mixed with Oil. It is good, also, to foment the Wound often with Sponges dipt in warm Vinegar, and to anoint the Body all over with the most liquid Kind of Cerate. Proper Cataplasms are prepared of Bulbs, Sanguinaria, Leeks, Bran boiled in Vinegar, Barley-meal boiled with Bay-leaves in Wine or Honey, Rue, unripe Figs, Goats-dung in Wine, *Sampfuchus* with Vinegar; also, *Cyperus*. *Asclepiades* advises the following Cataplasim, which he much commends:

Take of the Seeds of Wild-rue, Rocket, Stavesacre, Cenchrys, and the Vitex, the Fruit or Leaves of the Cypress, of each equal Parts; bruise them in Vinegar, and make them into a Cataplasim with Honey: The same is good taken inwardly.

Another celebrated Receipt, to be used either inwardly or outwardly, is as follows:

Take of native Sulphur, Galbanum, each four Drams; Succus Cyrenæicus, two Drams; or, for want of it, four Drams of Laser; of bitter Almonds blanch'd, two Drams: Steep them in Wine, and make them up with Honey.

Eating of Garlick, Bathing, and Wine, are, also, proper Remedies. *Aetius, Tetrab. 4. Serm. 1. Cap. 18.*

**PHALANGIUM**.

The Characters are;

The Flower is naked, hexapetalous; furnished with six Stamina, and contains a roundish Ovary, full of angular Seeds; the Root is fibrous.

*Boerhaave* mentions six Species of *Phalangium*; which are,

1. *Phalangium*; *parvo flore*; *non ramosum*. *C. B. P. 29. M. H. 2. 333.*

2. *Phalangium*; *parvo flore*; *ramosum*. *C. B. P. 29. M. H. 2. 333.*

3. *Phalangium*; *Africanum*; *floribus luteis, parvis*. *Rail Hist. 3. 564.*

4. *Phalangium*; *parvo flore*; *ramosum*; *foliis fistulosis*; *annuum*. *H. L. Asphodelus, foliis fistulosis*. *C. B. P. 29. T. 344.*

5. *Phalangium*; *Africanum*; *foliis cepaceis*; *floribus spicatis aureis*.

6. *Phalangium*; *Africanum*; *foliis Ficoidis*; *floribus spicatis, aureis*. *Boerb. Ind. alt. Plant.*

**PHALANGIUM** is, also, a Name for several Sorts of *EPIMERUM*.

**PHALANGIUM ALLOBRODICUM**. A Name for the *Lili-astrium*; *Alpinum*; *minus*.

**PHALANGOSIS**, φαλαγγωσις. A Disease of the Eye, when the Margin of the Eye-lid turns inwards, so that the Hairs stimulate the Eye. See *OCULUS*. *Paul. Ægineta, Lib. 6. Cap. 8.*

**PHALANX**.



**PHALANX.** The Bones of the Fingers are called *Phalanges*. See **BRACHIUM**.

**PHALARIS.**

The Characters are;

It has a thick Spike, which is compos'd of a squamous Congeries of Husks, containing Seeds; Pairs of these hollow, carinated Husks, containing in the middle between them a Seed involv'd in a Hull, have the Appearance of Scales.

*Boerhaave* mentions eight Species of *Phalaris*; which are,

1. *Phalaris*; major; semine albo. C. B. P. 28. *Theat.* 534. *Boerb. Ind. A.* 2. 158. *Raii Synop.* 3. *Phalaris*. *Offic. Ger.* 80. *Emac.* 86. J. B. 2. 442. *Raii Hist.* 2. 1248. *Phalaris vulgaris*. *Park. Theat.* 1163. *Gramen spicatum semine miliaceo albo*. *Tourn. Inst.* 518. **CANARY GRASS.**

It grows not only in the *Canary Islands*, but in *Tuscany*, among the Corn, and in *Spain*, and in *Languedoc* about *Montpelier*.

The Antients commend the Seed of *Phalaris*, the Juice of the Herb, and the Leaves, to be used inwardly under tormenting Pains of the Bladder. And we are inform'd by *Lobel*, that some have Bread made of it, which they frequently eat, in order to cleanse the Bladder from Stones, and all other Things which might incommode the free Discharge of the Urine. *Raii Hist. Plant.*

2. *Phalaris*; major; semine nigro. C. B. P. 28. *Theat.* 536. *M. H.* 3. 186. *J. B.* 2. 443. *Gramen, spicatum, semine miliaceo, nigro*. T. 528.

3. *Phalaris*; alter; semine griseo. H. R. *Par. Gramen spicatum, semine miliaceo, griseo*. T. 519.

4. *Gramen*; tremulum; majus. C. B. P. 2. *Theat.* 22.

5. *Gramen*; tremulum; majus perenne. H. L. 196.

6. *Gramen*; tremulum; maximum. C. B. P. 2. *Prodr.* 5. *Theat.* 24. *J. B.* 2. 470.

7. *Gramen*; paniculis elegantissimis; five ἐξάγρωσις. C. B. P. 2. *Theat.* 26.

8. *Gramen*; tremulum; minus, panicula parva. *Boerb. Ind. alt. Plant. Vol.* 2.

The Seeds are highly aperitive; for which Reason they are of Service in the Stone of the Kidneys and Bladder. *Hist. Plant. adscript. Boerhaav.*

**PHALERÆ**, φάλαραι. A sort of Bandage for the Nose, describ'd by *Galen*, in his Treatise of Bandages.

**PHAN'ON**, φάνιον. A Name of two compound Medicines, describ'd by *Galen*, de C. M. S. L. Lib. 4. C. 7.

**PHANLEC**. Iron. *Rulandus*.

**PHARICUM**. The Name of an excessive poisonous Medicine, which, by great good Fortune, is unknown to the Moderns. *Scribonius Largus*, N° 195. informs us, that it was said to be compounded of many Ingredients; but not one of them is known.

**PHARMACEIA**, φαρμακεία. Purgation of the Belly by the Exhibition of a Cathartic. *Hippocrates*.

**PHARMACEUTICA**, φαρμακευτικά. Pharmaceutics, that Part of Medicine, which gives the Description of Remedies, and teaches the Method of rightly exhibiting them. *Gorraus*.

**PHARMACIA**. Pharmacy.

**PHARMACITES**, φαρμακίτης, see **AMPELITES TERRA**.

**PHARMACOCHYMIA**, that Part of the Chymical Art, which teaches the Preparation of Chymical Medicines, by way of Distinction from the Spagirical Part, which treats of the Transmutation of Metals. *Castellus*.

**PHARMACON**, φάρμακον, signifies Poison, Medicine, and Colours in Painting. It is one of those Terms which *Aulus Gellius*, Lib. 12. Cap. 9. calls *vox media*, a middle Word between two Contraries, which may indifferently signify either of them.

**PHARMACOPOEUS**, φαρμακοποιός, from φάρμακον, a Medicine; and ποίω, to make, or prepare; is one well vers'd in the Art of preparing Medicines. *Castellus*.

**PHARMACOPOLA**, φαρμακοπώλης, from φάρμακον, a Medicine, and πωλίσω, to sell, is properly one who sells Medicines. To illustrate the three preceding Articles, it may be proper to observe, with *Le Clerc*, that those who addicted themselves to Pharmaceutics, or Medicamentary Medicine, were called *Pharmaceutæ*, as says *Galen ad Thrasylb.* The Name *Pharmacopæus* was taken in an ill Sense, and signify'd a *Poisoner*, who was, also, called *Pharmacos* and *Pharmaceus*, from the Word *Pharmatum*, which signify'd indifferently all sorts of Drugs or Compositions, both good and bad, every Medicine or Poison, both simple and compounded. The *Latins*, in Conformity hereto used the Word *Medicamentum* for *Poison*, and *Medicamentarius* for *Poisoner*, tho' the last Word signify'd, also, an Apothecary, as the first did a Medicine. The Word *Pharmacopola*, among the Antients, signify'd one of another kind of Profession, whose Business was to sell Medicines; particularly it belong'd to such as are now called Mountebanks.

**PHARMACOPOLIUM**. An Apothecary's or Druggist's Shop.

**PHARMACOPOSIA**, φαρμακοποσίη, from φάρμακον, a Medicine, and πόσις, a Potion, is either any liquid Medicine in gene-

ral, or a liquid Cathartic in particular; in which latter Sense this Term, and φαρμακίνη, are commonly used by *Hippocrates*, as *Galen* observes, *Com. ad 7 Aph.* 25. And thus are the Words used, 4 *Aph.* 19. and *Coac.* 251.

**PHARMACOTA Medicamenta.** Medicines which have a Mixture of Poison. *Castellus*.

**PHARMACOTHECA**, a Box, or Chest, for the Reception of Medicines. *Castellus*.

**PHARMACUM**. See **PHARMACON**.

**PHARMACUM AD AURES**. See **ÆGYPTIUM PHARMACUM AD AURES**.

**PHARMIANUM**. A Malagma so called. *Galen, Lib.* 7. de C. M. P. G. Cap. 6.

**PHARYNGETHRON**, φαρυγγέθρον, in *Hippocrates, Lib. de Diffic.* is the Pharynx, or Fauces.

**PHARYNGÆUM SAL.** An artificial Salt, of Use in the Quinsy, when the Pharynx, or Fauces, are incommode with a Defluxion of impure and serous Humours; it is prepared of Cream of Tartar, and Nitre, each one Ounce, with half an Ounce of bunt Alum, dissolved in distilled Vinegar, which Solution is afterwards coagulated according to Art. This Salt, mixed with two Drams of Honey, and dissolved in five Ounces of Plantain-water, makes an excellent Gargarism for the Quinsy. *Frederic Hoffman* from *Lobellius*.

**PHARYNX**, φάρυγξ. See **OESOPHAGUS**.

**PHASEOLUS**.

The Characters are;

It has a long Pod, full of Kidney-shap'd or oval Seed; the Plant, as to its Habit, or outward Appearance, is flexible, scandent, and, for the most part, trifoliated, or has its Leaves growing by Threes.

*Boerhaave* mentions twenty-five Species of *Phaseolus*; which are,

1. *Phaseolus*; vulgaris. *Park. Parad.* 521. *Tourn. Inst.* 412. *Boerb. Ind. A.* 2. 28. *Smilax hortensis*. *Offic. J. B.* 2. 255. *Raii Hist.* 1. 884. *Smilax hortensis sive Phaseolus*. C. B. P. 339. *Phaseolus albus*. *Ger.* 1038. *Emac.* 1212. **KIDNEY-BEANS.**

It is cultivated in Gardens, and flowers in *July*. The Pods, which are the Parts in Use, are opening, digestive, and provoke Urine, and the Menfes. *Dale*.

2. *Phaseolus*; vulgaris; fructu nigro.
3. *Phaseolus*; vulgaris; fructu rubro.
4. *Phaseolus*; vulgaris; fructu pallido.
5. *Phaseolus*; vulgaris; fructu luteo.
6. *Phaseolus*; hortensis; minor. T. 415. *Smilax hortensis minor*. C. B. P. 359.

7. *Phaseolus*; hortensis; siliqua longissima.
8. *Phaseolus*; hortensis; siliqua longissima, & latissima.
9. *Phaseolus*; peregrinus; hortensi similis; fructu timidiore, minore niveo. C. B. P. 340.
10. *Phaseolus*; hortensis; fructu albo, minore oviformi; Veneris dictus. *Hoffm. Cat. Altorf.*
11. *Phaseolus*; hortensis; minor; fructu incano, cujus hilum limbo fusco cingitur.

12. *Phaseolus*; puniceo flore. *Corn.* 184.
13. Idem (12); fructu ex nigro & Colossino variegato.
14. *Phaseolus Indicus*; floribus, & fructu, candidissimis. *Flor. Nor. Volk.*
15. *Phaseolus Americanus*; perennis; flore cochlearo odorato, seminibus fuscis orbiculatis; Caracalla dictus. H. L. *Phaseolus Indicus, cochlearo flore. Triumphet. Observ.* 92.
16. *Phaseolus*; octocaulis; Mungo Persarum; Turcarum Masc; Hispanorum Max. *Tab. Col. Annot. & Addit. in Nard. Ant. Rech. Ic. & Deser. Raii.*

It is a Plant with an erect Stalk, three Feet in Height, with Leaves and Flowers like those of our *Phaseolus*, and Pods containing Seeds the Size of dry Coriander-seeds.

The People of the Eastern Countries commonly eat the Seeds boiled, with Butter, as they do other leguminous Foods; and esteem it a Delicacy much preferable to the rest.

*Garcias* tells us, that the Seed, when ripe, is black, and is Food for Horses, and is sometimes eaten by Men: He gives us, also, the Method of using it, by the Inhabitants of *Guzarate* and *Decan*, in the Cure of a Fever. The Patient in this Case abstains from Food ten, and sometimes fifteen Days; after which they give him the Decoction of this Fruit, in which they have left some of the Pulp remaining; then they give him *Mungo* decorticated and boiled, like Rice, and suffer him to eat no Bread made of Wheat for many Days. *Raii H. P.*

17. Idem; semine albo.
18. *Phaseolus*; tenerimus; supra & infra, terram fructus gerens, sicque perennans.

19. *Phaseolus*; Ægyptiacus; nigro semine. C. B. P. 341. *Phaseolus, niger Lablab vocatus*, *Alpin. Ægypt.* 39.

It is a sarmentous Tree, of the Bigness of the Vines, and spreads its Branches and Leaves after the same Manner. In Appearance, it is altogether like the common *Phaseolus*; bears Flowers twice in a Year, that is, in Spring and Autumn; these Flowers are somewhat like those of our *Phaseolus*, and are succeeded



ceeded by long Pods, as those of Beans, and containing Seeds some black, some redish, exactly like our Kidney-beans. The Tree lives an hundred Years, and more, and is always green. The Egyptians commonly eat the Seeds or Beans, which are as well tasted as ours. The Women use the Decoction with Saffron, to provoke the Menfes; the same is good, also, for the Cough, a Dyspnœa, and a Suppression of Urine. *Prosper Alpinus de Plantis Egypti.*

20. Phaseolus; Ægyptiacus; semine rufo. C. B. P. 341.

21. Phaseolus; Ægyptiacus; semine albo.

22. Phaseolus; Zeylanicus; folio longo; siliquâ tenui; semine parvo, pallido.

23. Phaseolus; Asiaticus; siliquâ albâ, longissimâ, articulata; semine rubro.

24. Phaseolus; Zeylanicus; folio longo; siliquâ tenui; semine violaceo, parvo.

25. Phaseolus; Indicus; minimus; folio magno; flore cœrulescente. *Boerb. Ind. alt. Plant. Vol. 2.*

The Pods of the Kidney-bean are esculent, but the Seeds yield a gross Nutriment; whence they are good for those who use much Exercise, but are prejudicial to Students, and sedentary Persons. *Hist. Plant. adscript. Boerhaav.*

Besides the foregoing Species of *Phaseolus*, *Dale* mentions the four following;

1. *Phaseolus*. Offic. *Phaseolus vulgaris Italicus humilis, seu minor, albus cum orbita nigricante.* J. B. 2. 358. Raii Hist. 1. 885. *Phaseolus erectus*. Park. Theat. 1057. *Phaseolus peregrinus fructu minore albo.* Ger. Emac. 1213. *Phaseolus minor siliqua sursum rigente, fructu albo.* Tourn. Inst. 413. *Smilax siliquâ sursum rigente, vel Phaseolus parvus Italicus.* C. B. P. 339. ITALIAN KIDNEY-BEANS.

It is cultivated in Gardens, and flowers in July. The Pod is used, which, as *Dioscorides* says, if boiled, whilst green, and eaten, is good to mollify the Belly, and proper to provoke Vomiting.

2. SOIA. Offic. *Phaseolus Japonicus, ex quo Japonensium Soia, qui intinctus Species est, conficitur.* Herm.

This Species is a small, white Kidney-bean, brought from Japan, of which they make the Pickle called *Ketchup*; of this there are two Kinds, the liquid and the solid. *Dale.*

3. *Phaseolus erectus* siliquis Lupini, fructu Pisi majoris candido. *Kemph. Amœn. Exot.* 837.

We owe the Knowledge of this Species, says *Dale*, to the late learned *Paul Herman*, who communicated it, under the Title above said, to the learned *William Sherrard*, L. L. D. from whom we borrowed it.

4. The fourth sort of PHASEOLUS is the COUHAGE; which see. PHASGANIUM, φασηγιον. A Name in P. Ægineta and *Actius* for the LAPPA.

PHAULUS, φαῦλος, according to *Galen*, *Com. in Lib. de Fract.* with the Antients, signify'd not only vitious and depraved, but plain and simple, in Opposition to ἀκριβής, "exquisite;" in which Sense it is apply'd by *Hippocrates* to Diet; and *Hypophaulos*, ὑπόφαυλος, in the same Author, is expounded in *Galen* by μέτριος (*Metrios*) moderate, or a Mean between simple and exquisite.

PHAUSINGES, φαύσιγγες, in *Galen's* Exegesis, are said properly to signify red Circles in the Legs, excited by the Fire; but, by an Abuse of the Word, it signifies other sorts of Spots. Some, who read σπῖλοι, Spots, for κύκλοι, Circles, will have it to be red Spots, of any kind, excited by the Fire. Other Senses of the Word may be found in *Hesychius*, which are not material.

PHIAUSTIANOS, φαιστιανός. The Name of a very acrimonious and corroding Pustil, described by *Actius*, *Tetr. 3. Serm. 1. Cap. 49.*

PHAZALA. The Name of a Disease incident to Horses which wash in the Red Sea. *Castellus.*

PHEGOPYRUM. See FAGOPYRUM.

PHELLANDRIUM.

The Characters are;

The Root is fibrous, the Stalk very thick, the Leaves very large, and very finely jagged: the Petals of the Flowers are shaped like an Heart; and the Seeds are small, gibbous, and slightly striated.

*Boerhaave* mentions three Species of *Phellandrium*; which are, 1. *Phellandrium*. Offic. *Tourn. Inst.* 306. *Boerb. Ind. a.* 56. *Phellandrium vel Cicutaria aquatica quorundam.* J. B. 3. 183. *Phellandrium*. Raii Synop. 3. 215. *Cicutaria palustris*. Ger. 905. *Emac.* 1063. Raii Hist. 1. 452. *Cicutaria palustris tenuifolia*, Park. Theat. 933. C. B. P. 161. WATER HEMLOCK.

The Leaves are commended by *Blancard* in virulent Inflammations of the Penis; internally it is an Emetic.

This Hemlock has a thick, hollow, striated, and jointed Stalk, which arises not so high as the ordinary Hemlock; it is divided into several Branches, having large winged Leaves, much finer and tenderer than Hemlock; the Flowers grow in Umbels, which are but small in proportion to the Bigness of the Plant: They are white, with a Cast of Red. The Seed is small, and of a dark-brown Colour. The Root is compos'd of a great Number of white Strings, which shoot out from the Joints at

the Bottom of the Stalk: It grows in Ditches and Ponds, and flowers in June.

It is suppos'd to be much like common Hemlock in its Nature and Qualities; but it is believ'd to be more poisonous, and therefore is very seldom made use of in the Shops.

*Weber* has wrote a whole Treatise concerning this Plant. *Miller's Bot. Off.*

2. *Phellandrium*; folio Thysselin; caule rotundo. *Ind. 2.*

3. *Phellandrium*; Thysselin folio; caule sulcato. *Ind. 2. Cicutaria Cassubica, Thysselin folio.* Breyn. Prodr. 1. Raii H. 1868. *Boerb. Ind. alt. Plant. Vol. 1.*

It is said to possess the Virtues of Hemlock; but is sweet-scented and aromatic, and of excellent Service, where a gentle Dissipation of Humours is required. The first Species is of Use in Surgery, for discussing inflammatory and cold Tumors; and is said to resist a Gangrene; and nothing can be more safely apply'd to scirrhus and cancerous Tumors; it is, also, commended for Diseases of the Breast, being apply'd in the Form of a Cataplasm. *Hist. Plant. adscript. Boerhaav.*

PHELLODRYS. Offic. *Phellodrys alba latifolia & angustifolia*. Park. Theat. 1399. *Phellodrys candicans latifolia, molliter aculeata & candicans, angustifolia, serrata.* C. B. P. 423. *Phellodrys Matthioli.* J. B. 1. 2. 100. *Phellodrys sive Cerro.* *Sugaro Matthiolo.* Raii Hist. 2. 1391. THE LAUREL-OAK.

It grows in *Dalmatia*, and, as some say, in Greece; the Leaves, Bark, and Acorns, which are the Parts used in Medicine, agree in Virtues with those of the *Quercus*, or common Oak. *Dale.* The *Phellodrys* of *Theophrastus*, which *J. Bauhine* proves to be the same with what he, also, calls *Aria*, *Pliny* seems to have taken for the *Suber*, called *Phellos*; for he ascribes to that Tree all the Properties which *Theophrastus* ascribes to the *Phellodrys*.

The *Phellodrys nigra* is distinguish'd by the Smoothness and Blackness of its Bark; the Leaves differ from those of the *Ilex*, as being rounder and broader; from those of the *Smilax*, as being much shorter in respect of their Breadth; and from those of the *Suber* just mention'd, as being harder, and more prickly. Raii H. P.

PHELLOS. A Name for the *Suber*; latifolium; perpetuū virens.

PHEMOS, φῆμος, the Name of a Medicine against the Dysentery, composed by *Martianus*, and described by *Actius*, *Tetr. 3. Serm. 1.*

PHENGITES, φεγγίτης, a luminous Stone, capable of acquiring Light, and dispensing it again.

PHENULE, φένουλα, in *Myrepsus*, *Antidot. 77.* as *Fuchsius* observes in his Notes, is corruptly written for *Enula*, ἐνούλα; for *Phenula*, he says, is the same as *Feniculum*.

PHESÆ. A kind of broad Fish, mention'd by *Oribasius*, *Med. Coll. Lib. 2. Cap. 58.* from *Xenocrates*, among Fishes whose Flesh is hard and difficult of Digestion.

PHIALA, a glass Vessel, with a big Belly, and long Neck, of frequent Use in Coagulations and Solutions. *Castellus.*

PHIBALIOS, φιβάλιος, in *Galen's* Exegesis, is expounded a Species of Fig; some take it for the *Carica*, or dry'd Fig. *Phibalean* Figs are commended by *Athenæus*, *Lib. 3.* Now *Phibaleos* is a Place in *Attica*.

PHIBIT, rapax. Rapacious. *Rulandus*. Perhaps *Amber*.

PHILADELPHUS. A Name for the APARINE. *Blancard.*

PHILADYNAMOS, φιλαδύναμος, in *Hippocrates de R. V. I. A.* is an Epithet of Water; expressing that Property of it, by which it diminishes the Strength.

PHILAGRIANON, φιλαγριανόν. The Name of a Malagma, described by *Ægineta*, *Lib. 7. Cap. 18.*

PHILALYSTES, φιλαλυστής, in *Hippocrates's* Book of Precepts, means one who is of an anxious and perplexed Mind.

PHILANTHROPOS. The Name of a compound antinephritic Medicine, in *Nicol. Antidot. Oper. Mesue. Castellus.*

PHILETÆRIUM, φιλέταιριον. A Name in *Dioscorides*, *Lib. 4. Cap. 8.* for the POLEMONIUM.

PHILETIS COLLYRIUM. The Name of a compound Medicine for the Eye, in *Celsus*, *Lib. 6. Cap. 6.*

PHILIPENDULA, the same as FILIPENDULA. *Blancard.* The Term occurs in *Myrepsus*, *Antidot. 40.*

PHILIPPI Trochiscus, the Name of a Troche, described by *Paulus Ægineta*, *Lib. 7. Cap. 12.*

PHILISTÆA. An obscure spagiric Term in *Basil. Valent. in Repetit. Lap. Philos.* C. de Antim. where he says, that, if Antimony should pass into *Philistæa*, it would of itself become Glass. *Castellus.*

PHILLYREA.

The Characters are;

The Leaves are conjugated, and always green. The Flower is monopetalous, Bell-shap'd, divided into four Parts, and contained in a quadrifid Calyx. The Ovary in the Bottom of the Calyx becomes a globular Fruit, full of round Seeds.

*Boerhaave* mentions eight Species of *Phillyrea*; which are,

1. *Phillyrea*; crasso; latissimo, atroviridi folio quasi liliis.

2.

2. *Phil-*